

AMERICAN

25c

Cinematographer

THE JOURNAL OF THE AMERICAN SOCIETY OF CINEMATOPHILS



☒ WESTFALL
☐ GRANT
☐ SULLIVAN
☐ SPARKS
☐ HARAUQU
☒

Last person checking names
please return to floor

MEMBER USE

To: ☐
 For information: ☐
 For: ☐
 Please advise: ☐
 Please return for files: ☐

THIS ISSUE: • Industrial Cinematography
 • Television Cinematography
 • The Practical Use Of Intersubstitution

FEBRUARY
 1951



REG. U.S. PAT. OFF.

Congratulates

KTLA

Klaus Landsberg and his staff upon

Winning the following

Academy of Television Arts & Sciences

Awards

STATION ACHIEVEMENT

"K T L A"

PUBLIC SERVICE

"City at Night"

CHILDREN'S PROGRAM

"Time for Beany"

SPECIAL EVENTS

"Departure of Marines for Korea"

NEWS

KTLA News Reel



DUPONT FILM TYPE 624 is used exclusively by KTLA for TV Recording.

E. I. DuPont de Nemours & Co. (Inc.) Wilmington, Del.

PHOTO PRODUCTS DEPT

NEW YORK

LOS ANGELES

CHICAGO



BETTER THINGS for BETTER LIVING

THROUGH CHEMISTRY

Filmo



-PRO...NEW 16mm and 8mm SPLICER

B&H PROFESSIONAL PORTABLE . . . 35mm-16mm



Straight-across flange line cut, new heater, Carbide-tipped scraper blades... all the outstanding features of the FILMO-PRO Splicer (above) have been adapted to 35mm-16mm editing in this new . . . and portable professional model. Occupies 10 1/2" x 8 1/2" x 4 1/2" of bench space. Weighs only 22 1/2 pounds. Write for full details today!

B&H AUTOMATIC FILM SPLICING MACHINES ARE AVAILABLE IN 7 MODELS TO ACCOMMODATE ANY REQUIREMENT

Anticipating every special need in professional film editing, B&H provides seven versatile 35mm splicing machines, all fully automatic. Welds are film-strong and inconspicuous . . . accomplished quickly with minimum effort. B&H Splicing Machines have been standard equipment in film exchanges, laboratories, and studios since 1925. Write for new catalog, outlining your needs.



For amateur or professional, here's a new-type splicer . . . for 16mm or 8mm . . . sound or silent . . . color or black-and-white film. Gives you a film-saving straight cut at the frame line. And lowers visibility. Splice is only .008" wide!

Beautifully compact, the new FILMO-PRO is a versatile, one-operation, semi-automatic machine occupying only 7 1/2" x 7 1/2" x 4 1/2" of bench space, and weighing but five pounds. Will take B&H Heavy-duty 35mm Rewinds, as shown above.

Innovations on the FILMO-PRO include a Carbide-tipped scraper . . . good indefinitely, without resharpening. Blade-holder and support arm are integral parts of the machine. No need to pick up scraper block manually. After cement is applied, FILMO-PRO shears both ends of the film and applies mechanical pressure automatically. Heater in the base shortens setting time. After scraping, steady release scraper support. Both hands remain free for winding film and changing scraper blades.

New FILMO-PRO Splicers are available for shipment now. Write Bell & Howell Company, 7145 McCormick Road, Chicago 63. Branches in New York, Hollywood, and Washington, D. C.

Precision Made by

Bell & Howell

Since 1927 the Largest Manufacturer of Professional Motion Picture Equipment for Hollywood and the World

AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

ARTHUR E. GANTIN, *Editor*

Technical Editor, EMERY HOVE *Classics Editor, CLARENCE R. KREMER*

Circulation, MARCELLINE DUGAN

Editorial Advisory Board: Fred W. Jackson, A.S.C., John Arnold, A.S.C., Arthur Edison, A.S.C., Lee Garmes, A.S.C., Charles Rosher, A.S.C., Leon Shamroy, A.S.C., Fred Sarge, A.S.C., Dr. J. B. Watson, A.S.C., Dr. L. A. Jones, A.S.C., Dr. C. E. K. Moss, A.S.C., Dr. F. B. Sizer, A.S.C., Col. Nathan Levinson

*Editorial and Business Office: 1782 N. Orange Dr., Hollywood 28, Calif.
Telephone: GRamph 2135*

VOL 32

FEBRUARY • 1951

NO. 2

CONTENTS

ARTICLES

WILL THERE ALWAYS BE A NEED FOR CREAM ARTISTS? —
By Peter Muir, A.S.C. 10

A BAYNARD-WHEAT CAMERA FOR UNDERWATER PHOTOGRAPHY —
By Murray E. Marvick 12

NEW TECHNIQUE FOR "STUCK" SOUND ON QUARTER-INCH MAGNETIC TAPE —
By Wendell D. Fine 13

THE PRACTICAL USE OF LATERALIZATION — By Phil Tanner, A.S.C. 14

FILMING A SPILLAGE PROJECT — By Gerry Mann 16

LIGHT SOURCES FOR TV NEWSREEL CAMERAS — By Benjamin Berg 18

AMATEUR CINEMATOGRAPHY

MAKE YOUR MOVIES WITH SOUND — By Lee Calver 21

MEET THE NEW 35-CL — By Frederick Foster 22

FEATURES

HOLLYWOOD BULLDOG BEARS 26

KRIEGER UP WITH PHOTOGRAPHY 28

TELEVISION FILMING ACTIVITIES 31

CURRENT ASSIGNMENTS OF A.S.C. MEMBERS 74

WHAT'S NEW IN EQUIPMENT, ACCESSORIES, SERVICE 76

ON THE COVER

READY FOR LOVE SCENE — On the set of MGM's "Quo Vadis." Director of Photography Robert Surtees, A.S.C., wearing hat, and Director Mervyn LeRoy (left) check a camera angle for scene in which Leo Genn and young Italian cinemaactress Marina Berti make love. Heading cast of this MGM Technicolor epic production are Robert Taylor and Deborah Kerr. — Photo by Dave Lubin

AMERICAN CINEMATOPHOTOGRAPHER, established 1920, is published monthly by the A. S. C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter Nov. 18, 1937, at the postoffice at Los Angeles, Calif., under act of March 3, 1939. SUBSCRIPTIONS: United States and Pan-American Union, \$1.00 per year; Canada, \$1.50 per year; Foreign, \$4.00. Single copies, 25 cents; back numbers, 30 cents; foreign single copies, 35 cents; back numbers 40 cents. Advertising rates on application. Copyright 1951 by A. S. C. Agency, Inc. AUSTRALIAN REPRESENTATIVE: Huggins, 170 Elizabeth St., Melbourne



AMERICAN SOCIETY OF CINEMATOPHOTOGRAPHERS

FOUNDED January 8, 1919, The American Society of Cinematographers is composed of the leading directors of photography in the Hollywood motion picture studios. Its membership also includes non-resident cinematographers and cinematographers on foreign lands. Membership is by invitation only.

The Society meets regularly once a month at its clubhouse at 1784 North Orange Drive, in the heart of Hollywood. On November 5, 1950, the Society established its monthly publication "American Cinematographer" which it continues to sponsor and which is now circulated in 46 countries throughout the world.

Dominant aims of the Society are to bring into clear confederation and cooperation all leaders in the cinematographic art and science and to strive for pre-eminence in artistic perfection and scientific knowledge of the art.

OFFICERS AND BOARD OF GOVERNORS

BET BENNETT, President
FRED W. JACKMAN, Exec. Vice-President
ARTHUR EDISON, First Vice-President
RAL MERR, Second Vice-President
WILLIAM V. SEALL, Third Vice-President
ALFRED L. GOLES, Treasurer
JOHN W. BOOLA, Secretary
CHARLES EDWARDS, Sergeant-at-Arms
CHARLES CLARKE
GEORGE FOLAWY
LEE GARMES
VICTOR MILNER
SOL POLINSKY
LEON SHAMROY
JOHN WALKER

ALTERNATE BOARD MEMBERS

JOHN ARNOLD
BOB HALPERN
MELVIN KRAMER
ARTHUR MILLER
JOHN SEITS



the

and only...

Mitchell *
Professional Equipment for Professional Results

World's Finest

16mm and 35mm Cameras!

For over 25 years, Mitchell Cameras have set the world's standard photographic standards for the Motion Picture Industry. These flawlessly designed, ruggedly constructed cameras have proven themselves in smooth positive operation under the most exacting conditions. Today, as yesterday, the World's great films depend upon Mitchell—professional equipment to truly professional results.



The 16mm Professional has the same power Mitchell 35mm feature—500 ft. long 24mm. quality to 16mm. camera. Equipped with 16mm Mitchell 35mm, the camera is a favorite of leading commercial producers for record photography.



The Mitchell 35mm Camera—standard equipment of major studios—is internationally known for dependability and performance. Such photography, Mitchell 35s are available in BNC, 16mm, 35mm, 16C and 35C models to meet every requirement.

Mitchell Camera CORPORATION

666 WEST HARVARD STREET • GLENDALE 4, CALIFORNIA • CABLE ADDRESS: "MITCAMCO"

EASTERN REPRESENTATIVE: THEODORE ALTMAN • 531 FIFTH AVENUE • NEW YORK CITY 17 • MURRAY HILL 2-7005



Most of the nation's picture shows in the world are filmed with a Mitchell.

Hollywood

Bulletin Board



ROBERT SURTEES, A.S.C., was voted winner of the American Society of Cinematographers' "Futures Of The Award" award for November, 1952, for his photography of MGM's "King Solomon's Mines," photographed in Technicolor in Africa. Award is annually handed out for 1953 by Society for Hollywood Division of Photography for outstanding achievement in cinematography.

Nominating ballots were mailed January 27th, addressed to all Directors of Photography in the Hollywood motion picture studios, following the special screening of the last of the twenty films selected as candidates for Academy Award nominations.

Titles of more than seventy-five black-and-white and color films released for showing in theaters in Los Angeles during 1950 were submitted to the Academy for consideration. This list was narrowed down to the customary ten black-and-white and ten color films.

The twenty films and the Directors of Photography who photographed them are as follows:

Black-and-White Productions:

"Adam's Rib," by George Folsey, A.S.C. (MGM)

"All About Eve," by Milton Krasser, A.S.C. (Fox)

"The Asphalt Jungle," by Harold Rosson, A.S.C. (MGM)

"The Big Lift," by Charles G. Clarke, A.S.C. (Fox)

"Cristina de Berganza," by Frank Planer, A.S.C. (Stanley Kramer)

"The Furies," by Victor Milner, A.S.C. (Paramount)

"The Glass Menagerie," by Robert Burke, A.S.C. (Warner Bros.)

"Sunset Boulevard," by John Seitz, A.S.C. (Paramount)

"The Third Man," by Robert Kraker (Alex Korda)

"Two Flags West," by Leon Shamroy, A.S.C. (Fox) Color Productions.

"Annie Get Your Gun," by Charles Rosher, A.S.C. (MGM)

"Broken Arrow," by Ernest Palmer, A.S.C. (Fox)

"Destination Moon," by Lionel London, A.S.C. (Eagle-Lion)

"The Flame and The Arrow," by Erinn Haller, A.S.C. (Warner Bros.)

"King Solomon's Mines," by Robert Sarnes, A.S.C. (MGM)

"Sargasso and Delilah," by George Barnes, A.S.C. (Paramount)

"The Forsyte Woman," by Joseph Rutenberg, A.S.C. (MGM)

"The Toast of New Orleans," by William Snyder, A.S.C. (MGM)

"Wahiné Avenue," by Arthur Asling, A.S.C. (Fox)

"The White Tower," by Ray Rennison, A.S.C. (R.K.O.)

This year, Twentieth Century-Fox, which has consistently led all other studios in the past in the number of candidate films, has been moved out by Metro-Goldwyn-Mayer. The latter leads the list with a total of six candidates. Fox has five, Paramount has three, Warner Brothers, two, and R.K.O., one. Three independent films round out the total.

Result of voting on the ballot now in the mail will narrow the above list down to five black-and-white and five color productions. These become the official awards nominees, and will be announced publicly on February 13.

Members of the Academy will subsequently vote on the best film in each classification and prepare gold "Oscars" for presentation to the men who filed them. On the evening of March 22nd, presentation of Academy Awards will be made at the Pantages Theatre in Hollywood.

Milton Krasser, A.S.C., whose photography of Darryl Zanuck's "All About Eve" is being acclaimed in the industry, has been placed under long-term contract by 20th Century-Fox. Having completed three picture assignments in a row directed by Joseph L. Mankiewicz, Krasser starts his fourth with Mankiewicz the first of

February, a picture sensitively titled "The Doctor's Diary."

James Weeg Howe, A.S.C., who became a first cameraman in 1931, observes his 30th anniversary as a director of photography with the shooting of the Frank Ross-John Seillman, Jr., production, "The Lady Says No." First feature filmed by Howe was "Drums of Fate," starring Mary Miles Minter.

American Society of Cinematographers announced six new members to its organization last month. New resident director of photography member is Kenneth Peach, currently photographing a series of television films for Jerry Fairbanks Productions.

Associate members are: Herbert Aller, business representative for International Photographers, Local 659, I.A.T.S.E.; Randall Terrance, former technical lab man in England; John DuVal, technical consultant, television film division, DuPont Photo Products Division, Hollywood; Emil Oser, camera department head at Columbia Pictures studios; and John Swan, laboratory technician, Consolidated Film Industries, Hollywood.

(Continued on Page 16)

CHARLES SCHOENBAUM

Members of the American Society of Cinematographers, and others, directors and technicians in the Hollywood motion picture industry were addressed by the passing on January 28 of Charles E. Schoenbaum, A.S.C., senior director of photography for more than 35 years. Schoenbaum died at his home following a lingering illness.



Charles Schoenbaum had been a member of the A.S.C. since 1927. He began his career as first cameraman in 1917. In 1914 he gave up his profession of photo engraver to join the old Lasky laboratory. Shortly thereafter he became an assistant cameraman, and in 1920 he began a career as director of photography with the Lasky studios which lasted until 1932.

At the time of his death, he was one of MGM's stable of top cinematographers. His last assignment was that studio's "The Goddess of Love."

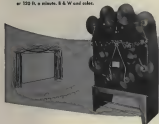
He is survived by his widow, a daughter, a brother and his mother.



Houston-Fearless GIVES YOU **AUTOMATIC POSITIVE CONTROL** *from Camera to Screen*

COLOR FILM DEVELOPERS, Models 17, 20 and 26 completely and automatically process Ansco Color film to highest professional standards. 35mm and 16mm models handle both camera and print stock. Entirely self-controlled with refrigeration and re-circulating systems, air compressor and positive temperature controls.

DOUBLE HEAD PRINTERS, 35mm and 16mm, offer four practical printing procedures: 1. Composite print with positive stock and picture negative developed over one hand and sound negative on the other. 2. Double print makes two positive prints from one negative. 3. Single print, using either hand independently. 4. Double print using both hands independently with two rolls of negatives. Operates in either direction. 60 or 120 ft. a minute. 8 & W and color.



Top light photography is only the beginning of a fine motion picture. The steps

between the camera and the screen are equally important and make the big difference between mediocrity and perfection. For 30 years, the motion picture industry in Hollywood and throughout the world has relied on Houston-Fearless processing equipment to produce the finest results while assuring maximum efficiency, speed, economy and dependability.



COLOR AND DENSITY SCENE TESTER and Sensitometer Cards make accurate single frame print tests with 15 combinations of 125-1600 film. Provides a quick, easy and accurate method for determining the proper film push to be used at different exposures. Variables in balancing two print stock sensitivities, selecting variations in overall speed and individual layer speed and in determining the proper processing technique to control variables of contrast.

The
**HOUSTON
FEARLESS**
Corporation

*Write for information on specially-built
equipment for your specific needs.*

- DEVELOPING MACHINES • COLOR PRINTERS • FRICTION HEADS
- COLOR DEVELOPERS • DOLLIES • TRIPPODS • PRINTERS • CRANES

11801 W. OLYMPIC BLVD • LOS ANGELES 64, CALIF.

"WORLD'S LARGEST MANUFACTURER OF MOTION PICTURE PROCESSING EQUIPMENT"

**16 MM and 8 MM
DUPLICATES
8 MM COPIES
OF 16 MM
16 MM COPIES
OF 8 MM
CLEAR AND BLACK & WHITE**

**16 MM SOUND
RECORDING**
and other services
to motion producers

**35 MM SLIDE
and FILM STRIP SERVICE**

**Motion
Picture
Service**

**WRITE
FOR
PRICES
QUIP A**

GEO. W. COLBURN LABORATORY, Inc.
114 N. WACKER DRIVE, CHICAGO 4, IL

**New
Enlarged
Edition**

**AMERICAN
CINEMATOGRAPHER
HANDBOOK
AND
REFERENCE GUIDE**

Non-patched with technical cinematographer information essential to professional and amateur!

Added supplements contain data on magnetic sound recording, laminations, photo prints for film, use of translucent photo backgrounds, color processes for motion pictures; color red photography, television photography—plus hundreds of ready reference tables essential to every day photographic use. Order your copy today!

PRICE \$5.00 POSTPAID

If Ordered in California, add Sales Tax

Send Department,
American Cinematographer,
1782 No. Ocean Dr.,
Beverly Hills 24, Calif.

Gentlemen: Enclosed please find \$5.00
for which please send me a copy of
THE AMERICAN CINEMATOGRAPHER
HANDBOOK AND REFERENCE GUIDE

Name _____

Address _____

City _____ Zone _____ State _____
(If you live in California, please in-
clude the sales tax—total \$5.85)

Keeping up with PHOTOGRAPHY

A NEW FORMULA—used to provide a complete solution for image errors in lens systems, has been announced by Dr. Max Herzberger, scientist at the Kodak Research Laboratories in Rochester, N. Y.

Basically, the theory reduces the various possible errors for each light ray passing through a lens system to two errors which can be computed exactly. When one of these errors is eliminated, a symmetrical image is formed. Removal of both errors gives a sharp image.

The theory is a generalization of the Seidel image error theory. It will be valuable in the design and evaluation of camera and projection lenses because it will allow a lens designer to learn the limitations of a new lens system while it is still on the drawing board.

A HIGH SPEED CAMERA for photographing the cell-tale interior of the eye is now in production.

Developed after two years' research by Bausch & Lomb Optical Company, it photographs—in color or black and white—the retina, nerve fibers and other structural elements of microscopic size within the eye.

The only camera of its kind in production today, it was designed at the request of the U. S. Public Health Service for studies showing the relationship between enlarged retinal blood vessels and vascular diseases.

The camera has also been used extensively by Dr. Walter Kroppeier of Duke University Hospital in his "rice diet" research and treatment of these diseases. Photographs taken periodically of the interior of the eye are superimposed so that the blood vessels may be compared at various stages of treatment.

A SPOCKETLESS developing machine for motion picture film has been developed in Europe in which the film is in a fastened helical path as carried on racks whose single upper and lower rollers have neither flanges nor sprocket teeth.

Overlapping of adjacent strands of film is prevented by fixed separator fingers at the sides of the rack where the film approaches the rollers.

Swelling and shrinkage of the film are accommodated by a change in effective roller diameter in response to tension in the film strands.

It is said this machine can be converted from 35mm to 16mm film merely by changing the strand-spacing fingers,

with a corresponding increase in film capacity. Alternatively, 16mm film can be adapted to 35mm and permitted to follow in through the machine with mechanical adjustment.

THE LENTICULAR color film process employing a lenticular positive has been revived in France under the name "Opticalon" by the Société Conle de Recherches Scientifiques R.L.V.

The problem of printing from a lenticular negative is avoided by making three color-separation negatives simultaneously in a beam-splitting camera provided with a prism block and three lenses working at an aperture of $f/2$, and of variable focus from 30 to 68 millimeters. A special printer has been developed in which the three separation images are printed on a lenticular positive film having 30 minute lenses to the millimeter in the picture area only.

MOTION PICTURES of the expansion and contraction of explosion bubbles, taken at a depth as great as two miles under the surface of the ocean at a rate of 20,000 frames per second, are helping U. S. Navy scientists to gain new knowledge of the behavior, effectiveness and design requirements of underwater explosive weapons.

The explosion bubble is a gas globe formed by the hot, expanded gaseous products of detonation. The cameras used in a recent Navy project were an Eastman Hi-Speed, a 35mm Fastax, and a rotating mirror frame camera best described as a modified Bowen. Each was shock-mounted in a heavy, water-tight case. The latter camera, used for making studies at greater depths, was enclosed in a spherical case with an inside diameter of 22 inches and walls 1½-inch thick. In this camera, the image is formed on a spinning mirror which has the focal axis of the taking lens system for its axis of rotation.

The plane of reflection of the mirror is aligned to this axis. The image is thus reflected through the framing lens to the exposure film. With the mirror revolving at the rate of 18,000 rpm, 100 pictures can be taken at the rate of 10,000 frames per second. The light source most commonly used consisted of a number of focal plane flashbulbs having a flash duration of about 75 milliseconds.



When you buy studio carbons—BUY "NATIONAL"

"Small source size, white light and
terrific brilliancy make 'National'
Carbon Arcs ideal for cinematography."

Nicholas Musuraca
A.S.C.



The term "National" is a registered trademark of
NATIONAL CARBON DIVISION
UNION CARBIDE AND CARBON CORPORATION

20 East 42nd Street, New York 17, N. Y.

District Sales Offices: Atlanta, Chicago, Dallas,
Kansas City, New York, Pittsburgh, San Francisco



FOR CASTING POWER, carbon arc lamps are essential for lighting large scale sets. And even on smaller sets, they provide an abundance of penetrating light in essential for quality modeling. Here, Fred Jackman, Jr., checks the light level of a set illuminated with M.B. Butler, one of the most powerful carbon arc lighting units now in use.

Will There Always Be A Need For Carbon Arcs?

Yes, believes the industry's leading maker of studio lighting equipment, who traces the history of carbon arc lighting and points to its steady advance as an important light source in the production of movies.

By PETER MOLE, A.S.C.

President, Mole-Richardson Company

THE ANNOUNCEMENT by Technicolor of a change in the color balance of its three-strip taking film to 3350° Kelvin for interiors has brought a wave of questions as to what this revolutionary move will do to the motion picture studio lighting equipment field. Will the various manufacturers of lighting equipment and hundred accessories and parts find that the business has become so small due to lower light levels as to

make it impractical to continue? Will these suppliers who are dependent upon the motion picture industry for support immediately attempt to liquidate their stocks and facilities?

Both questions may be properly answered in the negative because the very bloodstream of the motion picture is radiant energy; and without its expert use in widely varying forms the motion picture would cease to exist.

Undoubtedly a reduction in key-light levels from 500 foot candles to 150 foot candles will bring about a substantial reduction in the cost of set lighting. However, it also presents an opportunity for a wider scope of operation on the part of the cinematographer. If he can use some of the advantage gained for improvements in depth of focus; or improvements in production values, or any of the hundreds of means of creating a better illusion, then the total result may be a product that is more economical because the boxoffice receipts have made it so.

While the director of photography may for a time restrict his work to narrow limits because of economic factors, in the long run he deals in successful ideas that must be applied within broad limits.

Successful ideas are transient intangibles until molded into concrete form through the evolution of dreams, struggles, setbacks and trial and error. This is particularly true of our motion picture industry where engineering skill, no matter how great, is a mere tool for an artist who is striving for a type of dramatic effect which will make an audience thrill to the mood he has created.

Lighting equipment is a major tool in the cinematographer artist's kit. He uses light as the painter uses pigment and he molds his effects to the mood of the story, often achieving engineering technical perfection for the greater goal of creating an illusion. Through the evolution of trial and error he evolves a technique which is peculiar to him alone and which becomes a symbol of his character as a "Raphael," "Michelangelo," or a "Leonardo da Vinci" reveal their craftsmen.

One cinematographer I know who does painting with pigment as well as with light was called to the front porch by his daughter who was painting a sunset.

"Dad," she asked, "have I the right saturation of red in my sky?"

He looked at the sunset for a moment, then at her picture.

"Is that the way you see it, dear?"

She smiled quizzically. "That is the way I see it, but is it technically correct?"

"If you see it that way it is technically correct," he replied, and left her with her creation.

For each successful piece of lighting equipment we have made I can recall many that have been discarded; often for reasons of inadequacy, more often because they were created to fill a supposed need that was never to crystallize. To these so-called failures I credit what

success we have attained in our field.

From the beginning I have felt that it is our job to create adequate lighting tools for the cinematographer. The tools are not first designed by us and then presented to the cinematographer as what he should use. Quite the reverse is true. The cinematographer imagines a tool which he believes will give him a desired dramatic effect. He and his brother cinematographers must use it before its permanent value can be determined. It is upon this premise that our work begins. We often build one, or a few, of a given piece of equipment with little more to go on than the staff dreams are made of. If the desired result is not attained the equipment is laid aside as being back nostalgic memories when in later years it is relegated to the scrap heap from the place I often succeed in hiding it. If it proves successful in creating dramatic effect we then strive to bring it to technical perfection.

It is doubtful if many laymen realize the importance of light in the motion picture field; that it is light which creates the image on the motion picture film; that it is light which forms the image on the motion picture screen, that all of the nuances of modeling are the direct result of the control of light; and that all of the delicate tints and the depth of brilliant colors on the screen are the direct result of expertly controlled light.

In the early days of motion pictures the cameraman was restricted from even dreaming of making of it an art form, because of the technical limitations of the process. His job was to obtain moving shadows which resembled action and if he were successful at that he probably helped write the next script or build a



SELSBACH is working on lighting in an operating project at the Metro-Bichardson factory in Hollywood. **Black Power** (right foreground) and **Technique** observe these signs of company's newest 250-watt tungsten halide unit with—M-G's answer to motion picture industry's demand for "most powerful soft lighting units."

set. But through a long period of the survival of the most fit the importance of the cameraman brought the title of "Cinematographer" and then "Director of Photography."

It is true that there are mechanical techniques in the making of motion pictures which demand three pounds of flesh from the cinematographer as there are techniques and formulas in any other art form which must be understood and overcome before the finished product can achieve character. Because the production of a motion picture involves move-

ment and the coordinated efforts of hundreds of individuals it is truly an achievement when the cinematographer is able to form light, shade, and color into a dramatic effect.

As the cameraman grew in artistic stature he struggled to overcome the limitations of outdoor illumination which were constantly changing with the time of the day and the condition of the weather. He developed reflectors to project light into dark areas, screens to diffuse the overhead illumination, myriads

(Continued on page 34)



OLD AND NEW of lighting methods are illustrated in above photos. Pictures at left show set for "The Jazz Singer." 3725 black-and-white musical, set actively with incandescent lamps. Note great number of lighting units that were necessary for comparatively small set and fact they had to be placed close to scene and subjects being photographed.



Metro also rapid falling away of illumination in case of set, in cheap contract is shown at right from "Lovers and Lushes" set entirely with new flame, about same number of units are used but with far greater effectiveness, and lamps are placed close to set. It would have been impossible to light this set adequately with incandescent lights.



VIEWER looks at other side of the Fenjohn camera, just above hand grip, afford full control of exposure, focus, motor speed, filter placement and stop-and-start, while camera is submerged.

SIDE VIEW shows motor starting lever. Viewfinder aperture is seen at rear, through which the footage counter may also be observed.



A Bantam-Weight Camera For Underwater Photography

Weighing but twenty-one pounds before submerged, the Fenjohn 16mm. camera features full external controls and electric motor drive.

By **HENRY S. MONCRIEF**

Manager, Fenjohn Customized Photo and Equipment Co.

DEVELOPMENT of a low cost, 16mm. underwater motion picture camera that makes possible the photography of a wide range of marine subject material which heretofore has been restricted to those with only very expensive cameras. Such cameras, until recently, were custom built jobs running into thousands of dollars and they have been used chiefly by the British and U. S. Navies and by a few—a very few—engaged in marine biological surveys.

In addition to the development of this new camera, one other factor has contributed to the growing activity of making motion pictures under water, and that is the Aqua-Lung diving equipment which makes it possible for marine cameramen to work at reasonable depths and to remain under water for as long as

150 hours at a time. Dives over 200 feet have been successfully accomplished with the Aqua-Lung.

The Fenjohn underwater camera is the result of twenty-two years of custom production of underwater photographic equipment. Now for the first time, the camera is being manufactured in quantities in our factory in Ardmore, Pennsylvania in the underwater camera field was stepped up during the last war. We benefited by this, together with our years of experience in underwater photography and making equipment for this type of cinematography. Previous to the time we went on a quantity production basis with the Fenjohn camera, all underwater cameras were custom-built. Ten to fifteen thousand dollars was not an unusual price for such equipment. Today, the

Fenjohn sells for less than \$4,800.00.

The camera is so designed that the diver-operator can handle it with the same ease he would a regular motion picture camera above the surface. All controls—focus, aperture, speed, filter and start and stop—can be manipulated while the camera is submerged. The footage counter is so arranged that it may be seen through the camera viewfinder.

The camera is driven by a power-pack of flashlight batteries. In exhaustive tests, (Continued on Page 64)



UNDERWATER photo-oholic exposure meter developed by the Fenjohn Company at companion equipment for its underwater camera. Submerged, meter is used same as any photo-oholic meter above surface.

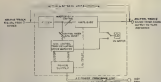


FIG 1—Simplified circuit of the Falschold Control Track Generator. The audio signal, entering at the input terminals, passes through filter which eliminates sound track frequencies above 12,000 cycles in as it is converted into modulation between audio and control signals.



FIG. 2.—External appearance of the Nucleoid Control Toxic Genevector by which control signal governing synchronizing P₁-loop unit is introduced into the plasmid and mixed with the crude liquid sample in synchronization of nucleoid-rich large Hevader with the nucleoid pattern marker.

LAST MONTH we described the Fairchild Pro-Sync attachment which is combined with the Fairchild Professional Recorder Unit No. 125, and which utilizes non-sprinkled 15-inch magnetic tape for synchronous sound recording. In this issue, we shall describe the function of the Fairchild Control Track Generator which, when coupled with a 15-inch tape recorder, insures positive synchronization of sound track with the picture film recorded on the camera.

The basic requirement of the Fairchild Pe-Sync system is that a signal, which is a measure of the speed of the camera motor, be recorded on the magnetic tape simultaneously with the taking of the picture. Once this is done the track may be played back on a Pe-Sync machine in exact synchronization for later dubbing onto an optical track, or for direct playback with the picture without any further processing, providing the advantages of economy and high audio quality of direct magnetic tape recording. The magnetic sound track may also be played back on any $\frac{1}{4}$ inch tape recorder for checking or editing, if desired, without the speed control feature of the Pe-Sync system.

Most stereo optical sound tracks reproduced on conventional projectors are somewhat below optimum sound quality. By using standard tape recorders for the sound, the quality is equal to the original.

Not the least of the advantages of this system is the saving in cost over optical recording—especially for 35mm pictures. Standard picture production technique benefits by the use of magnetic recording rather more than with the steam film, because in ordinary production recording it is normal practice to make a number

New Technique For "Sync" Sound On Quarter-inch Magnetic Tape

PART 2: Utilizing non-sprocketed 1/4-inch magnetic tape equipment for synchronous sound track recording.

BY WENTWORTH D. FLING

*For Parents and General Managers
Essential Reading: Equipment Corporation*

of takes of each scene, print the selected takes, and save all of the film—negative and positive—until the picture is completed. The new method requires the saving of the magnetic tape just as in the optical method, but after the picture is cut to its final footage, the magnetic tracks corresponding to the selected takes may then be dubbed to an optical track for the master negative. The entire magnetic track may then be erased and used over again on other production recording. In a cost comparison, 35mm optical sound track film runs about \$1.00 per minute for the negative, plus about \$2.00 per minute for positive prints of the selected takes, whereas the magnetic method costs about 25 cents per minute for the original tape, and after final dubbing onto the master negative, all of the tape may then be used again. Thus there is essentially no cost for the tape used and the amount of sound track film required is reduced to the actual footage of the picture in its completed form.

The advantages of the Plo-Sonic system are not limited to owners of Fairchild recorders. Fully synchronized sound tracks can be made with most professional 1/4-inch tape recorders that run at the standard speed of 15 inches per second. The only additional equipment necessary to synchronize a 1/4-inch magnetic tape with a picture film is a Control Track Generator—a zero-gain coupling unit which is simply connected between the mixer and the tape recorder input.

Reviewing briefly the functioning of the Pac-Sync system, it will be remembered that a synchronizing track is recorded on the tape at the time the picture is being photographed, using the a.c. voltage which drives the camera as the modulating signal, as we explained on page 16 in the January issue of *American Cinematographer*. This requires that both camera and projector be driven by synchronous motors, which is current practice. During playback, the

(Continued on Page 22)



TYPICAL camera setup in filming location scene in action studios for Columbia Pictures' "Boston Globe" in the background, director of photography Phil Tannura, A.S.C., main camera moving, a rough pupil of optical axis toward basket for catch camera seeing action. Note absence of floor lights.

ACTION scene at this was photographed in several studios while regular basketball game was in progress, using floor lights surrounded by photography for dramatic latent photography suggested the low-level lighting to secure a desirable negative.



The Practical Use Of Latensification

By PHIL TANNURA, A.S.C.



LOW-LEVEL lighting system can also employed in photographing scenes for picture on sound stage. (Tannura, director of photography Phil Tannura, A.S.C., photographing system which employs intensification of film.

LATENSIFICATION, which was re-evaluated about eighteen months ago by the motion picture industry, has since become standard practice with several of the studios. Columbia Pictures Corporation, to cite one, has incorporated the process in its well known "filthy foot candles" photographing system, which is employed on all of that company's low-budget productions. Normally, a light level of 100 foot candles is employed in shooting high budget productions in black and white.

Briefly, latensification is a special treat-

ment given the negative after exposure and just prior to development, which has the effect of stepping up the film's emulsion speed. As the term "latensification" implies—it intensifies the latent image on the film. Thus, negatives which have been underexposed, for one reason or another, are brought up to normal printing value in the laboratory. Today, there are many instances where cinematography is deliberately planned to take advantage of latensification—for instance the Columbia productions which are filmed using the "50 foot candle" system.

Knowledge of what latensifying the negative can do for the director of photography will make it possible for him to successfully undertake filming assignments that otherwise may appear difficult or impossible. Rather than go into technical aspects of the process,

I refer the reader to articles on the subject which have appeared in early *American Cinematographer*, (5409, December, 1948, 1949; also p. 440, December, 1949, 1948.—Ed.)

(Continued on Page 58)

At The Top
of the Ballot
and
In First Place
on All Good Pictures—

The Popular Choice—
The Popular Winner—

EASTMAN
PROFESSIONAL
MOTION PICTURE
FILMS

J. E. BRULATOUR, INC.

Distributors

Fort Lee Chicago Hollywood

A Canadian cameraman spars with 1,500 pipeliners to shoot a 16mm. color film documenting the laying of 1,127 miles of oil pipe line through Western Canada.

THE SCRIPT WRITER'S simple titles seldom reveal any of the cameraman's headaches endured during filming of a picture, "Army for Oil," a 16mm color film on Canada's first major oil pipe line. A certain no exception. Although only 60 feet wide the pipe line right-of-way is 1,127 miles long. It runs from Edmonton, Alberta to the head of the Great Lakes. And take my word for it—all cross country! Prairie, forest, lakes, rivers, masking and hills all majored in the locations.

Although work on the pipe line got underway during the winter, the big push started in May when most of the ground had thawed and dried out. One hundred and fifty days was to be the schedule for construction. Before the next frost came, oil had to be flowing into huge storage tanks at Superior, Wis. The largest tankers to ply the Great Lakes were already being built to carry the crude oil from Superior to the refineries of Ontario.

The main problem in shooting was

the juggling of time, location and operation. This meant intensive study of project technique, progress of work and distance between action points. In other words, we had to be at scheduled locations well ahead of the time that the desired action was to take place. Changes in terrain gave opportunities for variety and enlarged on the difficulties that faced the men who build pipe lines. Quick transport by any means available figured largely in our production.

The picture divided itself simply into two sections—winter and summer. The tight construction schedule (repeatedly one of the shortest of its kind ever attempted) meant the camera work would be all of the newsreel type—no set-ups, no posing, and—within reason—no waiting for "ideal" weather.

The long distance and probable leg work indicated the simplest of equipment would be the best. Thus, all shooting was done with a Cine Kodak Special equipped with only 25mm and 35mm Ektar lenses. Accessories included Bin



THE RUBBED pipe tracks served both as a car and means of transportation in the early part of the project filming.



WITH coming of spring, pipe line work faster. The cameraman had better opportunities, vantage locations for pictorial composition, as well.



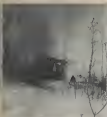
CAMERAMAN Gary Jones (right) of Imperial Oil Limited, Toronto, and his assistant Frank Rosen traveled three-quarters of the way across Canada to begin shooting the pipe line project in midwinter. Their "mini-reel" cameras performed perfectly in temperatures 40 to 50 degrees below zero.

Filming

reflectors, exposure meter and a light tripod. Commercial Kodachrome film was used throughout. Cameraman and assistant made up the crew.

Winter shooting was scheduled to begin at Edmonton in January—but . . .

After travelling three-quarters of the way across Canada, with camera freshly winterized at the factory and the "crew" outfitted with all the heavy clothes that could be found in the cedar chest, we arrived in Edmonton to find temperatures ranging from 40 to 50 degrees below zero. It was too cold even for welders erecting the huge storage tanks.



4E project headed into the wilderness, Moses his assistant rode the bush cutters, or ran all of them or followed.



WHEN the going really got tough, the snowmobile got the pipe line photographers in the same of action—surveys working on the.



COTTON gloves enabled Moses to handle camera at temperatures 20 degrees below zero. All shooting was done with a Cine Special and Super 8mm.



4E camera traced the fabrication of the pipe from hauling of the pipe sections from a site to installing in making the sections.



applying the protective coating, and finally bring the sections length of pipe in the trench that involved for 1,127 miles.



MOSES' simple camera equipment enabled him to get right in among the crew during the most hazardous action. But not always a shooting hazard.

Pipe Line Project

By GERRY MOSES

Roads were blocked and newspapers were filled with reports of cars freezing on the move and of travellers freezing to death on the prairie roads. We just had to wait and wait we did for two weeks and weather warmed up, roads cleared, and men were able to work. An interesting place Edmonton—where men and women have separate taverns and "red-eye" (tomato juice and beer) is a popular drink.

The city, capital of Alberta, became our headquarters. It was, incidentally, head office for construction of the western section of the line and here pipe

line engineers schooled us for the summer work ahead when time was to be of the essence.

Although temperatures did rise a bit we found shooting the surveying and brush clearing sequences a bit chilly. We discovered that white cotton gloves on the hands were the only practical covering during actual handling of the camera. This meant slow work and touches of frost bits. Our transport, like the surveyors', was snowmobile, bulldozer, skis and foot.

The main highlight of the winter work was to have been the crossing of

the South Saskatchewan River—about half a mile wide. The ice was drilled and dynamited for huge daggers to crash into the bottom. The river was treacherous and great pressures underneath caused over-eats of water which made both pipe line and camera work most difficult. Twenty to thirty below-zero temperatures made it uncomfortable too, especially for a cameraman who fell in!

Work on the river dragged into early spring and meant a second location trip. Warm weather in the mountains caused (Continued on Page 30)



STUDIO photostudio attached to films camera and fed by power pack suspended from shoulder strap enables KTTV cameramen to deliver to get important indoor shots properly lighted.



LEAVING cameraman, where he filmed procedure in important case, Glover from his dolly-mounted power pack to be back to KTTV headquarters for his next assigned filming assignment.



AT END OF DAY, power pack is put on shelves, which being voltage back to mount for pick's use the following day. Pack consists of sixteen two-cell non-spillable batteries, weight about 18 pounds.

Light Source For T-V Newsreel Cameramen

Portable 32-volt power pack and new high-power photo lamp enable KTTV newsreel cameramen to vie with press photographers in recording news events.

By **BENJAMIN BERG**
Technical Director, KTTV Television Newsreel

TWO FORMIDABLE problems which face every television newsreel photographic staff are (1) providing a light source for filming indoor news events and (2) providing such light in sufficient volume to afford shooting at an aperture that will assure reasonable depth of focus, which is highly essential for films made for telecasting.

Until recently, KTTV's staff cinematographers, who cover the Los Angeles police and courtroom "beats," depended upon photoflood lamps mounted on the camera and powered by 110-volt current supplied from some convenient outlet. The trouble encountered, more often than not, was that the current out-

let was not always convenient. More than once action the photographer intended to film was over and the subjects dispersed before he could locate an outlet into which to plug his extension cord. And there were times, too, when his fifty-foot extension cord became fouled in the feet of spectators and attendants in the courtroom. The newsphoto unit men, with their compact flash cameras, often got these shots and were on their way to another assignment before the newsreel cameraman got his first shot.

The news photographer's strobe light unit was the inspiration for the new compact light source, which we recently developed for KTTV's newsreel camera-

men to replace the old cumbersome 110-volt equipment. This consists of a powerpack weighing less than 18 pounds and a lamp unit which clips on to the viewfinder tube of the Filmo 30-DE camera which we use mostly for spot news assignments.

The powerpack is light enough to be carried with a shoulder strap, and one photographer has his mounted on a base with four casters so he can pull it along the sidewalk or in corridors of buildings. Housed in a light, wooden, fabricoid-covered case is 16 two-volt, 50-ampere hour non-spillable aircraft batteries. These units have clear plastic cases with built-in hydrometers that show at a glance condition of each battery.

Sixteen of the batteries furnish a maximum of 32 volts—two volts more than is normally required, thus providing an emergency current reserve. There's a two-position switch on outside of case. When battery is fresh, the current is drawn off the 30-volt position, when voltage begins to drop, the supply is taken from the 32-volt tap.

The source of illumination used with this power pack is a single 30-volt, 250-watt General Electric lamp of the photoflood type. It has a rated life of 3 hours, costs 60 cents. It is not normally stocked by lamp supply houses and is obtained only on special order.

We made up the lamp holder and re-
(Continued on Page 46)

Television Filming Activities

By LEIGH ALLEN



OLLIE COMSTEDT, A.S.C., (right) directing the photography for 16mm color production "Bernada Sound," appears in his new scene last week incident, Tom Snopes, shares the scene.

Three color films, recently photographed by Ollie Comstedt, A.S.C., have been televised on video networks from coast to coast. These include "Christmas In Sweden" and "Youth And Summer In Sweden," produced by Comstedt, and "Bernada Sound," which he photographed for John Bransby Productions. Films were among those used by CBS in demonstrating its new color television system recently.

Howard Maughan, CBS vice-president, painted a dim view of Hollywood's future in the television scene in recent talk to members of American Society of Cinematographers, many of whom are interested in what the future holds for them in the TV filming field.

It was Maughan's view that Hollywood labor and production costs were too great for making profitable TV films, asserting that movies cost about \$10,000 per minute of screen time to produce, whereas live TV can be produced for only \$121.00 per minute.

Opinion in industry is that Maughan, recently from New York, had not had opportunity to explore and properly evaluate local TV film production scope and operations.

Academy of Television Arts and Sciences' recent 1955 awards presentation in Hollywood was notable for a major

omission: one or more awards for the best TV show on film, best TV film photography, etc. Whereas last year and the year before, the Academy's most prominent awards went to TV film shows, this year the motion picture phase of video was entirely ignored by the Academy. Said *The Hollywood Reporter*—"Incredible was the omission of KTTV's splendid newswired in the news category, and even more incredible was the Academy's failure to continue last year's award for the best TV show on film. With Hollywood TV prepared to stand or fall on its ability to develop and use TV film technique, surely here was one major award which could lend considerable honest stature to Hollywood's standing in the industry."

KTTV **Newswired**, incidentally, has been making a tidy profit for the station for some time. While other video program operators have made little money, station's newswired seemed to a profit-making venture almost immediately. One factor is reel's "repeater" value. Each film is now put on air three daily: at noon, and at 7:30 and 10:30 p.m. At end of week, station puts on a half-hour newswired comprising re-edited summary of week's best news events. Each reelcut has a separate sponsor or series of sponsors. One notable result of reel's financial success is that KTTV's cinematographers have recently been elevated to standard 16mm pay scale.

Benjamin Klum, A.S.C., video film photographer for Bing Crosby Enterprises, who, we reported here last month, has been awarded the trade publication TV's Award of Merit, informs us the Award was for the quality, not quantity of the television films he has photographed for Crosby—now numbering more than 125.

WRAP-TV's fast newswired crew turned in an achievement record last year when it filmed 25 complete Southwest Conference football games and presented same on air within 24 hours or less. In all, 65 prints were turned out from the original 25 games by this Fort Worth station's film laboratory, with films averaging 2,500 feet per game. Total footage going through cameras and process-

(Continued on following page)

At Precision today
we're processing
the finest
SCIENTIFIC FILMS
for nationwide
showings



For your 16 mm. scientific
film requirements
use Precision...

- Over a decade of 16 mm. scientific film printing in black and white and color
- Fine grain developing of all negatives and prints
- Scientific control in sound track processing
- 100% optically printed masters
- Expert timing for exposure correction in black & white or color
- Step printing for highest picture quality
- Special production effects
- Exclusively designed Mazer equipment
- Personal service.

...on wonder more and more
of the best 16 mm. films today
are produced at ...

PRECISION
FILM LABORATORIES, INC.
21 West 46th St.,
New York 19, N.Y.
JU 2-3970

Less than 30 DAYS remain

FOR ENTERING FILMS IN
AMERICAN CINEMATOGRAPHER'S
1951
INTERNATIONAL AMATEUR
MOTION PICTURE COMPETITION

TEN American Cinematographer Trophy Awards are the prizes that await the makers of the TEN TOP films entered in our 1951 competition, which closes March 1st. Judging and classification of films is now in progress. Judges are six distinguished Hollywood directors of photography.

If you are an amateur movie maker and your film is wholly amateur-made, you are eligible to compete in this annual competition, no matter where you live. Entries are invited from amateurs throughout the world. Time is short! Send for entry blank and rules today!

Contest Chairman,
AMERICAN CINEMATOGRAPHER
1782 No. Orange Drive,
Hollywood 28, Calif.

So. Kindly send me official entry blank for AMERICAN CINEMATOGRAPHER'S
1951 Amateur Motion Picture Competition. I plan to enter an 8mm ____/16mm ____

Film, length, _____ ft.

Name _____

Address _____

City _____ Zone _____ State _____

Country _____

ing amounted to 310,000 feet. Station's cinematographic staff won the 1949 NABD award for the nation's best television newscast.

Television film programs released in the Los Angeles area by the city's seven TV stations totaled fifteen hours per week during the last week of 1950. This includes only films produced specifically for telecasting. Total increased from four hours and forty minutes for the first week in June. These figures also do not include the great number of TV commercial films and spot announcements televised by each station.

\$750,000 is budget set aside by Ziv Television Programs, Inc., New York and Hollywood, for production of 32 "Boston Blackie" video films. Shooting will be done at company's Hollywood studios.

Multiple camera method of photography will be employed in shooting four 15-minute TV film programs for the Donmeyer Corporation, makers of kitchen equipment. Films will be produced by Sarra, Inc., in Chicago.

Chase camera for live show video programs are now being recorded on film for a series of half-hour shows being produced in Hollywood and directed by Barney Gléard. About 22 minutes of each 22 minute program consist of film, which is projected and mixed with the live show as it is telecast.

KTTV of Los Angeles recently negotiated a deal with WPIX-TV in New York for interchange of newscast footage. The two stations are the nation's leaders in video newscast films, are only stations known to be sharing films. KTTV plans to enlarge scope of its exchange as other TV newscast telecasts can share KTTV's filmed news events. Already station has purchased a Bell & Howell 16mm film printer for turning out the duplicate footage.

"Truth Or Consequences," filmed on 35mm in Hollywood by Fred Jackson, Jr., A.S.C., now reaches 34 TV stations—10 of them by film. Show was awarded an Emmy by Academy of TV Arts and Sciences for the most outstanding audience participation show.

Jimmy Van Trees, A.S.C., is director of photography of the Groucho Marx "You Bet Your Life" video show, for which Marx was voted most outstanding TV personality by the Academy.

Make Your Movies With Sound

Advanced cine amateurs in increasing numbers are buying single-system sound cameras and finding renewed interest in their movie making hobby.

By LEO CALOIA

THE INTRODUCTION by Berard-Bach, Inc., of its Cine-Five 16mm sound-on film camera at the attractive price of \$695.00 now makes it possible for serious cine amateurs to shoot movies with sound.

Price of this complete sound camera compares favorably with the expenditures by many movie amateurs for the better grade silent 16mm cameras and attendant line equipment. Thus, for the

first time, those amateur movie makers able to afford the best in cine equipment, now may own a single-system sound camera that produces sound movies of professional quality.

However, long before the Cine-Five was introduced, many amateurs already had acquired the more costly 16mm sound camera, such as the Auricon-Pro I, for one purchased one of these cameras about two years ago; and in the Los Angeles Camera Club, of which I am a member, there are at present six members with 16mm sound cameras—all successfully making sound films comparable in sound and picture quality to those made by professional cinematographers with the same equipment.

The fact these amateurs have achieved professional quality in their work attests to the ease with which they made the transition from silent film production to sound. That other cine amateurs will follow the growing trend to sound films is evident in reports of purchases of sound cameras being made by amateurs all over the country.

(Continued on Page 46)



ARTHUR, shown above with his Auricon-Pro single-system sound camera, shot "Last Demand," his most recent production, using lighting and camera equipment shown here, handled camera and sound amplified

through headphones, is adjusted on the microphone panel close to the camera.



AS ACTION is photographed by camera, sound is also recorded on the film. Headphones enable camera operator to hear sound as it is being recorded.



Meet The New 70-DL

Bell & Howell's newest 16mm camera features parallax-correcting finder with three-objective rotary turret.

By FREDERICK FOSTER

THE NEW BELL & HOWELL 70-DL 16mm motion picture camera introduces a completely new parallax-correcting viewfinder that eliminates off-center closings and titles. Of course, this feature is only one of the many that highlight this new camera, which replaces the popular 70-DA and 70-DE models. But the camera's viewfinder—an important feature on any cine camera—represents a revolutionary step in finder brilliance, accuracy and convenience.

Long exclusive to Bell & Howell cameras in the 8mm and 16mm fields, the "positive" principle of finder construction has been applied to an entirely new optical system, and has been combined with a parallax-correcting device to produce a viewfinder said to be the only one of its type in the amateur field.

The new finder is adjustable to correct for parallax (that is, to match the viewfinder field exactly with the camera lens field) from 3 feet to infinity, in 8 steps. Thus, the problem of centering closings and titles is eliminated.

The new optical system is said to give a 300% brighter image, showing an extremely brilliant image of the field. This is something to be appreciated when filming in bad light or when filming up night scenes. Telescope-type optics—as used on B&H-built tank gun sights—provide extreme sharpness and highly increased contrast over the field image of the finder.

A new type focusing eyepiece, adjustable through a range of 6 diopters, meets individual eye requirements, and insures a clearer image. Those who wear glasses will appreciate the eye clearance that has been provided, so that the operator need not "glue" his eye to the eye-piece. With the new 70-DL,



BELL & HOWELL's winning entry for 1953...the new 70-DL 16mm motion picture camera which features a formidable parallax-correcting viewfinder that insures accurately centered pictures, no more off-center closings or titles. These finder objectives match lenses on camera.

the eye position is three-fourths-inch back of the eye-piece.

The term "positive" given this radically new Bell & Howell finder means that the image does not move as the eye shifts, and the finder always shows sharply defined limits of the field. Objectives for the finder are available for all B&H focal lengths—from 3-inch to 6-inch. The viewed image always fills the finder frame, and—of particular importance—no masking down is required for telephoto.

Complementing the camera's 3-lens rotary turret is the finder's own 3-objective rotating turret, on which may be mounted any three positive objectives to match the lenses mounted on the camera turret.

An innovation for those who may employ the camera for professional work requiring exact measurement from film to subject, is a prominent index mark placed on the viewfinder which shows the plane from which to measure the subject.

The camera has a host of additional features, too. One is

(Continued on Page 38)



NO MORE closings like this when photographing with the 70-DL 16mm camera, with its parallax-correcting viewfinder, which makes centering all closings accurate and simple. Ideal for title centering, too.



THIS is the way this shot appears on the screen when filmed with the 70-DL—just as it appeared in the finder to the camera operator. New finder gives a brighter image, too — 3 times brighter.

UNDERWATER CAMERA

(Continued from Page 32)

we have exposed well over 2,000 feet of film at record speed on one set of batteries. Normally, an underwater camera would rarely shoot this much film during a single session. Battery depletion is automatically indicated far in advance of actual battery exhaustion by a small light bulb that comes to flash when the current drops below minimum requirements.

The camera housing is cast aluminum, machined to tolerance. The camera unit is a Bell & Howell, taking 35-foot film magazines. The lens is 13mm. wide-angle Elgert, f/1.5. Variable camera speeds provide for operation at 12, 16, 24, 32, 48 and 64 frames per second.

The camera weighs at lbs. in air, and 3½ lbs. under water. Both of these weights are very important. The camera is said to be the only underwater motion picture camera light enough in weight so that it can be easily handled topside or passed by the swimmer to a companion in a boat for unloading.

Reloading may be accomplished in a matter of seconds thanks to two very important features, quick-acting clamps on the housing cover and the use of instant loading film magazines.

Low on the Fenjohn camera is calibrated for underwater distances.

The camera provides for use of filters and includes four filter mounts. Where black and white film is used in the camera, good results can be obtained without use of filters—although we have found that better contrast is secured when using the Aero No. 2 filter. Where color film is used, filters become a must. The excessive blue and green colors of the water must be retained in order to obtain good color balance. Suitable underwater color filters are not generally available, possibly due to lack of demand. As a result, we have prepared our own—four in all—which meet most underwater requirements with color film. The governing factor in choosing a filter for underwater cinematography with color film is the distance through water—i.e., from surface to object to camera. Even the same depth may require use of a different filter should object distance change from 3 to say 15 or 20 feet.

Polarizing plates are also very helpful at times. The average underwater photographer, however, will find very little use for them. After numerous experiments we have concluded that generally, polarizing plates are indispensable only under certain special conditions—for example when the water surface is glassy-calm.

An important item of companion equipment which we have developed for use

with the Fenjohn camera is an underwater exposure meter. A light-weight cast aluminum housing encloses a Weston model 852 photoelectric exposure meter. Adjustment knob extends to exterior of case through a water tight bushing. At front and back of housing are glass-covered openings which provide light passage to the photocell and afford means of reading the meter dial. Weight of the meter in air is 16 ozs., under water, 9 ozs. Measuring but 3" x 4" x 1½", the meter is small enough to fit your pocket.

Under water, light readings are taken as the normal manner with this meter. While the average depth for general underwater photography is around ten to twenty feet, good light will be found in most clear-water areas as far down as sixty feet. In southern waters, coral and tropical fish are more abundant at the ten to twenty feet level, and we have found it is common to have a Weston reading of 190 at this depth.

So much for the equipment. As to the pleasure to be derived from shooting movies under water, I'd like to tell you something of the scenery you may expect to find when you take your camera below surface. On the surface, water usually has a very drab appearance, but descend below and a riot of color unfolds. The sevier cameraman, making his first descent invariably is amazed at the vast-colored coral formations, with purple sea fans in the background. And the tropical fish make rainbows of color as they pass in review.

Of course, such breathtaking loveliness does not prevail in all waters. It is in the warm waters of the south where such underwater fairylands are to be found—in parts of Florida and around the Bahamas.

Underwater movie filming, when done with proper equipment, differs little from surface photography—set your focus, get your light reading, and proceed.

LIGHT SOURCE FOR TV NEWS CAMERAMEN

(Continued from Page 31)

Recess unit, using the reflector from a Mole-Richardson Junior spot. A hole was cut in the center, in which was fitted a lamp socket, and the unit then attached to a cast aluminum bracket specially made for the purpose. Bracket readily clamps by means of a thumb screw to housing of the Filmoviewfinder on left side of camera. The addition of this lamp bracket offers an interference to opening the door of camera when loading film. Lamp and bracket come off with the door, and are not dislocated in any way.

Thus, the use of this unit does not slow the time consumed in replacing a used roll of film with a new one.

The 30-volt lamp gives sufficient light to enable the photographer to shoot subjects four feet distant at a stop of 1/6, 1/8, and at 30 feet at 1/10—using DuPont No. 130 reversal panchromatic film, which has an ASA tungsten rating of 40. Most exposures, of course, depend upon the surroundings—light or dark walls, light coming through windows, etc. To enable photographer to set his lens at the proper stop with a minimum of delay, a prepared exposure chart is posted on back of the lamp reflector and shows at a glance the stop to use when camera is at various distances from subject—similar to a flash-lamp guide.

The light source is also used on exterior shots for fill light. If an instant goes out with the cameraman, the lamp is detached from camera and held in a fixed position by the assistant. This enables cameraman to move about the scene, in and out for closeups, etc., without having to change exposure for such camera setup. The 30-volt lamp has a very narrow beam, and for this reason must be held right on the subject for best photographic results.

As a result of the development of this new lighting unit, KTTV's newswired photography has improved considerably. Many TV set owners have complimented the station on the improvement. Where before the station's newswired cameramen were limited in the scope of subjects they could film, because of the light problem, today these men are now getting real action movies never before possible. The powerful new light unit now enables them to get excellent night shots such as those of automobiles arriving or departing at airports; unusual night traffic accidents; etc.

When the day's work is done, the cameraman puts the power pack "on the floor" to be re-charged. For this we use a special rectifier-charger made up for the purpose which delivers a charge of 2 amperes per hour. It usually takes about 4 hours to completely recharge a battery given normal use.

At the present time we have four Fenjohn Filmoviewers equipped with the lamps and power packs. These units augment our heavier camera equipment consisting of Anscon single system sound cameras. We have also built up a larger power pack unit that has a 22 ampere hour capacity. This has been divided into two sections which are connected by flexible cable. Another 25-foot length of cable permits the lights to be used some distance away from the power source, such as in a large courtroom, where the power pack must necessarily be kept in the rear of the room or in the corridor.

NEW!!!

KINEVOX PORTABLE FIELD POWER SUPPLY



- 115 Volts, 60 or 50 Cycles, A.C.
- 500 Watts Output
- Heavy Duty Fibre-Covered Cases
- Battery Weight, 62 lbs. — Generator Weight, 72 lbs.
- Manual Frequency Control

Supplies power for
any standard 35mm or
16mm camera and
Kinevox Recorder.

PRICE \$410.00 F.O.B. BURBANK, CALIF.

4000 RIVERSIDE DRIVE
BURBANK, CALIF. U. S. A.
NEW YORK

KINEVOX, Inc.

MEXICO CITY

ROME

PHONE: Stanley 7-3871
Cable Address: KINEVOX
BOENAT

outside. This power pack is most often used for night shots in large areas and where a larger lamp unit is used with the camera. This is a four-lamp unit similar to the Power-line, which is attached to the camera with a screw through the tripod fitting, and takes four lamps of a different type than those used in the 30-volt unit described earlier. These are 30-volt reflector-flood type lamps, made by General Electric Company, which have only a 3/4-hour life and cost \$2.60 each. Four of these lamps supply ample illumination for the biggest shooting assignments our cameramen are likely to cover.

These illumination outfits which were developed primarily for KTTV's television newsreel cameramen, also have applications in the fields of theatrical and documentary motion picture production. Already, the little 30-volt unit has been successfully employed with a portable 35mm camera in shooting location footage in a remote cave for a forthcoming Hollywood production.

And unquestionably the theatre newsreel outfit will ultimately adopt them, too; for if they have proven successful in the admittedly tough field of TV newsreel photography, they undoubtedly can do a comparable job for theatre newsreels which operate at a more leisurely pace. **END**

110 Volt AC/DC

VARIABLE SPEED MOTOR

with TACHOMETER for EK Cine Special

Now you can motor drive your
Cine Special with confidence.



Painted complete with rubber-mounted cable and plug. Write for complete details.

Tachometer is mounted in clear view of operator. It is calibrated from 16 frames per second to 64 fps with a definite RED marking for 24 fps.

Electrical governor control for adjusting speeds. Steady operation at ALL speeds. "OFF-ON" switch built into motor base. No adapter required, except motor coupling which attaches to camera and couples to motor.

Motor shaft equipped with spring loaded drive arm which will shear if camera jam occurs. This drive arm is easily replaced.

FRANK J. SCHERER
CAMERA-EQUIPMENT CO.
1800 BROADWAY NEW YORK CITY

FOR EQUIPMENT BARGAINS

See Classified Advertising on
Page 77 of this issue.

REGISTER NOW: FILM & TV

NEW INSTITUTE

★ Professional Instruction
Actual studio work. Free
Placement Service. G.I.
Approved. Day or Eve. Classes
Free Catalogue "N"

FOR FILM & TELEVISION
25 Park Ave., New York, N.Y. • ST 2-9449

MAKE YOUR MOVIES WITH SOUND

(Continued from Page 61)

Obviously when you switch from making movies with a cine camera to a sound camera, you have a new technique to master and not a few problems to cope with; but in the main, they are not at all insurmountable and it isn't necessary to have a corps of assistants in order to make a successful film in sound with your new equipment. There are a few kinks or "tricks of the trade" that you must learn as you go along, and the purpose of this article is to give the reader benefit of the experience of one amateur amateur who has encountered most of the problems and altered many of the pitfalls that usually beset the novice sound camera operator. Nor do I wish to hold up the experience as one fraught with disappointments—at least it need not be for those conditioned by experience to proceed methodically with any undertaking.

The cost of making single-system sound movies, in either black and white or color, is the same as for silent movies, as the initial cost of film for either type camera is the same. As the sound track is processed simultaneously with the picture, there is not the added cost of a separate sound track film that one encounters in producing sound films using the double-system. After your sound film is returned from the processing laboratory, it may be projected with the sound as recorded, or it may require some editing—a matter which presents one of the greater problems for the cine amateur. Editing, therefore, is something that should be attended to as much as possible at the time of shooting the picture.

One of the problems that arises when shooting single-system sound on long-sustained lip-synchronized or musical scenes, is that the camera cannot be stopped and moved for a different angle or setup of the scene without also interrupting the recording of the sound. Thus, there is a problem of having the sound continue unbroken in sequences composed of alternate long and close shots. This is because the sound is recorded on the same film on which the picture is also recorded, and the sound for a given frame of film is recorded at a point approximately 25 frames ahead of the picture frame.

When shooting with a single-system sound camera, the camera should run for about two seconds before the certainty action in a scene is started, and allowed to run a comparable two seconds after the scene action ends. If this is not done, the sound for the scene will be at the

beginning of the ending take, or twenty-five frames ahead of the picture.

Too often the amateur is told it is impossible to edit single-system sound film because of this sound track displacement or over-lapping; but it can be done, once the amateur understands the picture and sound track relationship on the film. I learned early that in cutting and editing single-system sound for lip-synchronization, it is important to cut the beginning of the scene according to the first visible fluctuation on the sound track. The wavy pattern of the variable-area sound track, which appears on the edge of the film and adjacent to the picture area, is readily discernible and with a little experience the film editor can "read" the track and know just where to make his cuts. At the end of the scene, the procedure is to cut at a point twenty-five frames past the last visible fluctuation on the track.

There are times, however, when it is desirable to have the sound for one scene carry over into the next scene in, for example, in a scene showing a man seated in his living room who hears the sound of someone obviously opening a drawer in an upstairs room. The first scene would show the man reading; the second would be a closeup showing systematic hands opening the drawer, and the third—a flashback to the man downstairs. In order to show this on the screen with uninterrupted sound, the second scene—the closeup of the hands—would be cut in at a point corresponding to the last visible fluctuation of the sound track. When spliced, the sound of the drawer being opened will carry over into the third scene.

Earlier we stated that the camera cannot be stopped on a long-sustained take of a lip-synchronized or musical scene to make another setup and have the sound carry on, uninterrupted. However, there are ways of getting around this. Let us suppose the subject being filmed is singing a song that will run for a hundred feet of film. Obviously it would be quite boring for the audience to look at the singer from the one camera angle throughout the 100 foot take. So, to make interesting cuts, the vocalist is filmed while she sings four or five lines of the song, then the camera is stopped and moved to another position. Here the vocalist starts singing again but the sound camera is not started until the line preceding the one previously recorded is sung. This second take, as well as the third and fourth, should run about 25 feet in length. When the film is returned from the laboratory, it will consist of four 25-foot takes with sound track—the first three duplicating the sound of the ending line of the previous scene.

With the aid of a good magnifying glass, the film editor can observe on the sound track where one line of the song ends and the next begins, cut and splice the film at these points, and present on the screen an unbroken sound track comparable to one made with the double-system—and with all four scene cuts properly matched.

Another interesting way in which the efficient single-system sound camera can be used to advantage is in post-recording sound for dubbing in the picture after it is photographed. This method is especially advantageous in providing synchronized sound for travel and vacation pictures that have been photographed with careful attention to continuity, so that no cutting and editing is required afterward. The vacation film may be photographed with your old silent camera—providing it affords sound speed of 24 frames per second—which may be more convenient for the traveling movie maker than to take along the heavier sound camera. (We assume, of course that you have retained your old silent camera, instead of trading it in or disposing of it at the time of purchasing the sound job. To use it for shooting film that is to have sound added, you will need to have the teeth removed on one side of the film drive sprocket.)

The important thing is to keep close record of the footage allowed each take or scene and to write a brief description of the contents of each. Before the film is sent to the laboratory for processing, wind it back on its original spool, then thread it into the sound camera. Cap the lens, so that only the sound track will be exposed as the film is run through the camera. Then, with cut sheets and narration script at hand, and the camera and microphone set up, tested and adjusted for proper modulation, start the camera and speak the narration, carefully trying to coincide with the scenes already recorded on the film. Such a film should open with a brief musical introduction and close with a crescendoing musical finale, which can be provided by records played on a phonograph connected to a channel of the camera's sound recording system.

I found this method not only works well in making a travel or vacation film, but in making scenario pictures, as well. In Hollywood, the big scenario productions are shot on the sound stage with the pre-planned action and dialogue recorded simultaneously. Because of the greater number of cuts usually required in the amateur scenario-type picture as compared to the simpler 4-scene picture described earlier, it would be a complicated job to attempt to apply here the same editing-photographing procedure.

dare, but results approximating that achieved on the Hollywood sound stage can be accomplished with the single-system sound camera. We proved it recently in the production of a little picture titled *First Accession*. Most of the action filmed with sound takes place on a single set—a kitchen. Here a man and wife doing the dinner dishes together, are discussing a proposed vacation trip. The kitchen scenes with lip-sinc sound were all filmed in one evening. Scenes of the various vacation spots they planned to visit were previously shot silent with my old Cine Special. Later, appropriate musical background was added to these scenes, using the sound camera as described above. These scenes were then intercut with the scenes recorded with dialogue and filmed in the kitchen.

The kitchen episode reaches a climax when the husband reluctantly reveals to his wife that the vacation trip is off because he secretly had dipped into their joint bank account to purchase a new set of golf clubs.

Editing and cutting of these scenes followed the procedure outlined earlier, and the result is a continuity film given tremendous added interest because of the addition of dialogue and synchronized sound.

Just as most cine amateurs find it difficult to go back to shooting black-and-white film, once they try color, so the new sound camera owner will find his silent movies dull by comparison with his new sound movies. However, your old silent pictures also can be given a voice, using the sound recording facilities of the single-system sound camera. By projecting the silent film at 24 frames per second sound speed, an appropriate narrative and musical background can be recorded simultaneously by means of the sound camera. Then duplicate prints can be made of the silent film with the post-recorded sound track added. Then all your old films may be brought up to date and given new interest through the medium of the sound camera. The increased speed to 24 f.p.s. will speed up action in some scenes, but not enough to offset the added interest given the films by the sound track.

The question most often asked, perhaps, by those contemplating purchase of a single-system sound camera is, "Can I operate it entirely by myself, or must I have one or more assistants to handle the sound?" In making *First Accession*, I handled both camera and sound equipment without any help. On a small production of this kind that doesn't involve a large cast, it is a simple matter—once the microphone, camera and lights are set—to adjust the amplifier-mixer controls and start shooting. The sound is constantly checked as it is recorded by

Guaranteed Results!



For television films of theatrical quality, try the new "Cine-Voice" 16mm Sound-On-Film Camera. Tested and now being used by leading studios and television stations for public relations, newsreels and commercials.

\$695.00 with a 30-day money-back guarantee. You must be satisfied. Write today for free illustrated "Cine-Voice" folder describing this newest achievement in 16 mm cameras.



Berndt-Bach
Incorporated

BERNDT-BACH, Incorporated

7381 Beverly Blvd., Los Angeles 36, Calif.

MANUFACTURERS OF SOUND-ON-FILM RECORDING EQUIPMENT SINCE 1935

Square Garden. In many of the stadiums, ceilings were so high that illumination coming from the ceiling fixtures was considerably diminished by the time it reached floor level. To build up the light to fifty foot candles, we replaced some of the lamps in house fixtures with No. 4 photofloods and placed other photofloods in strategic locations using clamp on fixtures.

Shooting at the stadiums also had its advantages, particularly because with most of the lighting coming from overhead we had greater freedom of camera movement. We could move the camera or change setups anywhere at anytime without having to consider the floor lights, as on the sound stage. There was no side-lighting in any of the stadiums, but in spite of this we secured good photographic quality, part of which was due to the light reflected from the highly polished floors. But even in the reaction shots made of spectators, the results were highly satisfactory. These were "grab" shots made without benefit of special lighting. Once or twice we did use a single photoflood near the camera for fill light on these shots.

We are out on this assignment with three Mitchell BNC cameras and three hand-held Arriflex cameras. The Arriflexes were used to get in close during height of action and for unusual angle shots. Perhaps some of the most thrilling shots were those made with the camera looking down at the basket to catch the scoring action—and the misses, too. To achieve this with the most dramatic camera angles, we replaced the back-snap board back of one basket with a large panel of optical glass. This enabled us to shoot directly at the ball and players during the decisive plays.

The three Mitchell cameras were always in use as the play progressed, each picking up the action from a different angle. These Arriflex cameras were required in order to have at least one in readiness when the action camera ran low on film, as the cameras hold only 200 feet of film at a time. As soon as a camera's film supply was exhausted, it was replaced by another, and immediately reloaded.

Having the advantage of illumination enabled us to shoot atmospheric shots of spectators entering and leaving the stadium entrances—this at night and without any illumination other than the street lights and lights in the building entrance.

When we returned to Hollywood, the balance of the picture was filmed on sets on the sound stage, and here we continued to use the "fifty foot candles" shooting system. A surprising few lighting units are employed for this and it is remarkable the results that are achieved.

The NORD



Defense Orders have replaced the manufacture of the Nord Camera. As soon as we can resume production of new cameras you will again see our message on these pages.



THE NORD COMPANY
254 FIRST AVENUE, NORTH,
MINNEAPOLIS, MINN.

C. ROSS

FOR

LIGHTING EQUIPMENT

Inkies and Arc Lamps including Required Accessories
Generators—Cables—Boards—Boxes



Baby Camera Crane—Dollies—Blimps—Coated Heads



GRIP EQUIPMENT

FOR LOCATION AND STUDIO

Parallels—Steps—Platform Ladders
Century Stands—Reflectors—Flags—Scrim



SOLE EASTERN MOLE-RICHARDSON CO. DISTRIBUTOR
RENTALS • SALES • SERVICE



CHARLES ROSS, Inc.

333 WEST 52nd STREET

NEW YORK 19, N.Y.

Circle 6-5490-1

MORE CONVENIENCE with LESS EFFORT



PAR 400 Magazine for Cine Special

Consider the convenience of having 400 feet of film available for instant use, as well as the savings of time and effort. Specially designed to changing 100-foot film chambers, and you can hardly see why the PAR 400-foot magazine is a "must" for your Cine Special.

The PAR 400-foot magazine is operated by the camera spring motor with a PAR spring take-up or for an electric motor drive. It is reversible for backloading features a trigger counter, and provides normal use of the 100-foot film chamber—both daylight loading loads and film on consist of any film up to 400 feet can be used. The entire magazine is quickly and easily removed, and can be used with the PAR Reflex Finder-Magnifier.

Write for prices and complete information on remaining your Cine Special with a PAR 400-foot magazine.

PAR PRODUCTS CORP.

100 N. Census Ave. Hollywood 36, Calif.

AKELEY CAMERA AND INSTRUMENT CORP.

175 Varck Street

New York 14, New York

—Established 1914—

Designers and manufacturers of silent and sound motion picture cameras with 225" shutter opening, (288" shutter opening for television use), gyro tripods and precision instruments. Complete engineering and machine shop facilities for experimental work, model and production runs.

INQUIRIES INVITED

TV GROUND GLASS

for Mitchell Standard, M. C., and Bell & Howell 35mm camera. Shining TV alignment—outlining active receiver area. TV projection area and Academy (sound) aperture.

Write for Details

CAMERA EQUIPMENT COMPANY
1608 Broadway New York, N. Y.

The success of Columbia's "fifty foot candles" system demonstrates that lanternification makes cinematography possible in almost any location and under lighting conditions short of complete darkness. It is now possible to shoot location scenes in office buildings, narrow halls, alleys, etc., using only a few photofloods for illumination and, by giving the negative the lanternification treatment, insure an acceptable price. Moreover, it is possible to achieve print quality in such footage that makes it no problem at all to edit it with scenes shot with normal studio lighting. So successful has the "fifty foot candles" system proved that Columbia Pictures also employs it in shooting scenes for many of its high budget productions, such as night street scenes, etc.

Lanternification has yet to find general use in the making of films for television, but in view of the demand for low cost production of such films, the application of the process is certain to receive more than passing attention. For one thing, it makes possible photographing successfully live TV shows in the television studio, using nothing more than the

regular stage lights for illumination.

For the commercial film producer, lanternification can be helpful, too. Just as Columbia and other studios save costs of transporting generators and costly lighting equipment to remote locations, the industrial film producer likewise can shoot in similar locations with illumination comparable to fifty foot candles, have the negative lanternified by the laboratory, and come up with acceptable prints. Laboratories such as Consolidated Film Industries and the Parke Industries, Inc., in Hollywood offer this service to all producers of 35mm film—major or independent studios or industrial film producers. The service is not available for 16mm film for the reason that as yet, no 16mm stock is available that will respond to the lanternification treatment.

Columbia's "fifty foot candles" system consists of shooting with Eastman Pan-X negative with illumination of fifty foot candles at an aperture of f/2.8. This film is then developed by special time and temperature process, and Columbia has so perfected its system that grain has ceased to be a problem.

FILMING A PIPELINE PROJECT

(Continued from Page 27)

an early break-up so the crossing was abandoned and re-scheduled for late summer. I was glad I was a cameraman and not a contractor. However, I did manage to cover the smaller but successful winter crossing of the North Saskatchewan River.

What the winter work lacked in heat and speed, summer made up. The pipe crews meant business. They had a line to build in a short time and had no room then a passing interest in photographing.

This meant that our material would be shot on the "fly." It meant that we had to study the action carefully and pick camera positions and angles ahead of time. As it turned out this type of shooting was very successful. Nothing looked stiff or artificial. We were actually part of the crew building the line. We learned their techniques and what routine to expect next.

This was where our simple camera equipment paid off. It enabled us to get right in among the crews during the most intensive action. To capture in close-up the skill and speed of their work often meant using the camera hand-held when tripods were in the way. This meant teamwork especially for the assistant with reflector—a job in which he became very proficient. Much of this

close-up footage made very effective cutting material.

Dust was the main summer shooting hazard. The weather was very dry and very hot. Side boom "cars" and tractors incessantly churned up the prairie soil so that working in six inches of dust was commonplace. Traffic up and down the right-of-way raised a constant cloud. Of course this meant that holes and cracks in the camera and magazines had to be covered with adhesive tape. Filters were cleaned and replaced as often as possible, but naturally image quality did suffer a little.

The pipe painting and wrapping operation, one of the most fascinating of all, covered the camera and cameraman with soot and smoke not to mention the choking fumes.

Weather and light on the whole offered no particular problem especially during action which was repeated from one end of the line to the other. However this wasn't true on such comparatively short operations as river crossings. We just had to shoot when the operation was going on. Strange how important activities so often happen just when the light is on the wane. In shooting a documentary picture of this type, borderline light conditions are rather hard on the

photographer. In spite of the possibility of missing some important action, there comes the time when you must believe your light meter and quit.

The summer season of the big river crossing yielded one of the main highlights and one of the main headaches. Long welded strings of pipe already processed and fitted with heavy river weights were lifted and pushed out into the stream by a line-up of fine huge pipe line side boom tractors. At the same time a huge draw-works, connected to the pipe by cable, pulled from the opposite side. The problem was to get from shore to shore when desirable action was taking place. Only one boat, and not too seaworthy a craft at that, had to serve pipe-liners and photographer alike. However, after carefully planning out footage needs and taking advantage of minor delays when cables broke, we did manage to change locations from side to side and cover the story completely.

We almost missed the final climax though. During a shooting halt before the final push (calculated to last two days), we flew back to Edmonton for a rest. Just got there and into a bath when a long distance call indicated that "it" would happen the following morning. It was Sunday evening and the pipe line patrol aircraft could not fly after dark. We took off at six in the morning and landed at the river at nine.

The preliminaries were over and they were just ready to pull the final section of pipe across. Simple as my equipment was I had to hurry to get set up. And for a few minutes I'm sure I acted like a mad man. But I got my shoes and the boys made their entrance. Afterward, many of these men left for home in Oklahoma, and Missouri and California. I left for other locations on the line.

To me, shooting the assured documentary has a particular thrill of its own. Scarcity of equipment and limited control of action lends an air of freedom to the work, and its results are directly relative to the ingenuity, imagination and flexibility of the cameraman and his camera. What he expects no even-present obstacles is more than made up in the feeling of individual achievement.

Sponsored by the Interprovincial Pipe Line Company, "Artery For Oil" was produced to explain graphically the full significance of the line, especially to the west. The film shows the route of the line from the Redwater oil field in Alberta to Superior, Wisconsin, the port from which the crude oil is shipped by tanker to refineries in Ontario.

Sound recording for the film and the final editing was done by Crawley Films, Ltd., of Ottawa and Toronto. END

SLASH Film Production Costs

Each time you make a sound track, film production costs go up. The waste of film stock and the time delay for processing increase operating costs immeasurably. You eliminate these extra costs with the

Fairchild PIG-SYNC Tape Recorder. Flip back the record at once, check it... erase the track... strike the sound before the talent, the set and crew are disbanded.

New Use PIG-SYNC Tape Recorders For All Original Sound Tracks

Fairchild's development of PIG-SYNC makes possible the use of inexpensive 1/4" tape and gives you these benefits:

- 1/4" tape costs 80% less than 1/2" magnetic film.
- 1/4" tape requires 50% less storage space.
- 1/4" tape is easier to handle.
- 1/4" tape allows more intimate contact with the bands.
- 1/4" tape has more uniform coating—less amplitude flutter.
- 1/4" tape eliminates roughness of tone caused by sprocket drive.



SEND NOW

FAIRCHILD
RECORDING EQUIPMENT
CORPORATION
154TH STREET AND 7TH AVENUE
WHITESPONE, N. Y.

Send Bulletin PG-1 about
FAIRCHILD PIG-SYNC TAPE RECORDERS

My Name _____

Company _____

Address _____

PG-1

SALES • SERVICE • RENTALS

— 35 mm. • 16 mm. —

CAMERAS-MOVIOLAS-DOLLYS

Complete Line of Equipment for Production Available for Rental

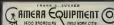
Mitchell: Standard - Hi-Speed - NC - BNC - 16 mm.

Bell & Howell: Standard - Shiftover - Eyemo

Moscow: 16 mm. Cameras

Moscow: Editing Machines - Synchronizers

SPECIALISTS IN ALL TYPES OF CAMERA REPAIR WORK. LENSES MOUNTED



USED BY MOST OF THE MAJOR STUDIOS

- Enough illumination for sound set lighting using ordinary beam candle!

That's what you get with the newest portable, light-weight COLOR-TRANS lighting equipment. One light gives as much illumination as a regular 500-watt halogen studio spot, yet draws only 150 watts of current. Real economy lighting for small film units. A "must" for television remotes.

Write for details—or let us demonstrate

Color-Trans Converter Company

7045 Berman, Hollywood 38, Calif.

Phone: HUmpstead 3334



U. S. Pat. No. 2,247,644

GOERZ AMERICAN APOGOR

F.2.3

the movie lens with microscopic definition successful cameramen have been waiting for—

- A new six element high quality lens for the 16 and 35mm film camera. Corrects for all aberrations of both opening, giving highest definition in black & white and color, made by skilled technicians with many years of optical training.
- Fitted in precision flange mount which makes the lens instantly without rotating elements or shifting image.
- This lens comes in C mount for 16mm. cameras, fitting to other camera upon special order.
- Also available near 35 and 50mm. mounted and 75mm. stated.

Write for prices, giving your dealer's name.

The C.P. GOERZ AMERICAN OPTICAL COMPANY

Office and Factory

317 EAST 34 ST., NEW YORK 16, N. Y.
A.C.C.

35mm VIEWFINDER GROUND GLASSES FOR TV

RENTAL AND SERVICE PLAN on COM-
PLATE line of viewfinder ground glasses

Write for descriptive literature of our
complete line of viewfinder ground glasses

GREINER GLASS INDUSTRIES CO.
791 East 142nd St. New York 24, N. Y.

Film Scratched? "Rain" in Pictures?

If the answer is YES — you need the
SERVICES of Rapid Film Technique, Inc.
Clients from coast to coast —
and more are joining our list
of SATISFIED customers daily

Send for our booklet AC explaining how
scratch, streaks, dirt and all surface are
removed from 16mm., and 35mm. films,
negatives, Kodachrome, positives and prints

EVERYBODY IS TALKING ABOUT—

Rapid Film Technique, Inc.

22 W. 44th St. • New York 17, N.Y.
Est. 1916 • Lenses 2-2406

CARBON ARCS

(Continued from Page 52)

of opaque forms to block out undesired rays. He was dealing entirely in light and shade and the "pigmments" he used were constantly changing. He came to realize that if he were to advance his art he must obtain complete control of light and that the beauties of natural sunlight were too vagrant to be harnessed to his purpose. Artificial light was his only salvation; so he was soon lining his sets with carbon arc lamps made for street lighting, stage lighting spotlamps, industrial lighting Cooper-Blythe units, and later with military searchlights and carbon arc floodlamps. He tried the incandescent filament lamp, but was unsuccessful with them at the time because the film was blind to their red rays.

With this inefficient and ill-adapted equipment he was beginning to achieve an art form when the advent of sound imprisoned his camera in static, awkward, soundproofed booths. The importance of the new sound medium transcended all demands for photographic quality, and the importance of the engineering-minded technicians, who were brought into the industry to operate the sound equipment, enabled them to reduce the art of cinematography to a mechanical function in order that they might achieve a result in their own field.

Restricted to small sets and with his camera static the cinematographer tightened his belt and started to move forward again. Soon a number of cameras were running on the same set in order to achieve the effect of movement, and the cinematographer began casting about for a light source that would not be restricted, as were his cameras, by the noise it created.

He had been experimenting with pin chromatic film which was not blind to red light and in the incandescent filament lamp he saw a lighting medium which would allow him the freedom of movement he must have in order to again gain with light.

It was during this period that we entered the field of the manufacture of motion picture studio lighting equipment. The motion picture industry was in the chaotic condition which is characterized by the aftermath of a revolution; great stars were plummeting from their towel orb; stars of the legitimate stage were coming in and they brought with them the techniques of the legitimate stage which seemed artificial and restricted to motion pictures, but which were the salvation of early sound production.

Although I had been a searchlight en-

gineer for a large corporation, and had worked for some time in a major motion picture studio as an electrician, like other engineers I lacked the double viewpoint which is a fundamental requirement for success in a business so equally divided between an engineering and an art form.

Elmer Richardson, one of my partners, had had experience in the field of design and business administration. Paul Coates, a second partner, was a veteran motion picture studio electrician with a wide knowledge of practical application. One of the many things we had in common was a firm determination to manufacture motion picture studio lighting equipment which would meet the particular needs of the trade. Looking back I now see that one of our basic errors was the opinion that engineering perfection should transcend utilization. We soon learned that economy of operation, operating efficiency and convenience were only of great importance when they were tied in with functionality from the viewpoint of the cinematographer.

As in the period that takes place during rehabilitation after a revolution, the prime requirement was to rapidly produce equipment which would allow the cinematographer to work with a minimum of interference from the inflexible rules of the sound engineer who at that time possessed anything but a double viewpoint.

We met the demand by adapting incandescent lighting housings from other fields and by imitating some of the arc light housings which had proven useful. As a matter of fact the shock of the sudden arrival of sound brought an era of imitation in the hurry to survive. All artists, even the sound engineers themselves, were working with a new and strange medium that could not be suddenly adapted to motion picture techniques and in their confusion they became total victims to trial and error until they had had time to digest the noisy intruder they had swallowed.

Lenses of the cameras were not corrected for proper focus of the red rays of the incandescent lamp and the types of early equipment we were able to produce, although comparatively silent in operation, failed to deliver the intensity and curving power required for artistic results in large areas. While it has been said that two wrongs never make a right we were added at the time by other limiting factors of the sound system which kept most production on small sets.

It was at this time that the cinematographer, battling against the odds created by the lack of tools and restricted action, attempted to capitalize his misfortune by creating a style of soft focus, effect light-

ings that would have been beautiful in portraiture but were often a distraction from the total dramatic effect of the particular scene.

This era was also characterized by flat lighting which was born of necessity because the lighting units were little more than commercial flood lamps. However, as sound became a part of the whole instead of the detour, and the sound engineer began to develop the double viewpoint, the cinematographer was again able to prove that the picture is light and to obtain more freedom of action.

(To be continued next month)

SOUND ON 1/4-INCH TAPE

(Continued from Page 51)

Pic-Sync machine will then hold the recorded magnetic track in exact synchronization with the movement of the film through the projector.

Any professional tape recorder which has good speed regulation and recording response to 14 kilocycles may be used for the original track, but the Fairchild Pic-Sync machine must be used for the reproduction of the tape in *synchronism* with the projected picture. For picture taking on location, it is usual to employ a reasonably portable magnetic sound recorder in conjunction with the Control Track Generator, the recorder and the camera being driven by synchronous motors. Their speed, consequently, is dependent upon the frequency of the a.c. voltage driving them, and the frequency of this line voltage becomes the speed reference.

When using the Control Track Generator, an electrical high frequency signal is recorded on the tape. This signal is an exact measure of the speed of the film through the camera because the film is driven by sprockets, and no slippage is possible. Thus the sound tape now has "magnetic sprocket holes" recorded on it and on playback these magnetic sprocket holes hold the tape in synchronism with the movement of the film through a projector.

The Control Track Generator is effectively a junction point at which the controlling signal may be injected into the circuit and mixed with the audio signal. The control signal consists of a carrier tone of 14,000 cps—well above the audible audio signal range—and not of itself a measure of the film speed. However, the carrier is modulated by the a.c. voltage, and it is this modulation which indicates the film speed. The reason for this arrangement is that the 40-cps voltage by itself is audible, and

(Continued on Page 52)



VARIABLE SPEED MOTOR

with TACHOMETER

for

CINE SPECIAL CAMERA
AND MAURER CAMERA

- 115 V. Universal Motor—AC-DC
- Variable Speed 8-64 Frames
- Separate Run for Cine Special
- Adapter for Maurer Camera

Interchangeable Motors:

- 12 Volt DC variable Speed 8-64 Frames.
- 115 Volt AC 60 Cycle, Synchronous Motor Single Phase
- 220 Volt AC 60 Cycle, 3 Phase, Synchronous Motor



Adapters for Cine Special
Maurer and Mitchell Cameras
Adapters for Bellows and Film
Cameras. Tachometer Equipment

NATIONAL CINE EQUIPMENT, Inc. 20 W. 32nd St.
NEW YORK 10

For Sale

MOTION PICTURE FILM LABORATORY

Complete for 35mm and 16mm Productions

Stills ★ Trailers ★ Slides

Television Shorts

Established 30 Years

Heart of San Francisco

FOR DETAILS WRITE:

C. R. Skinner Manufacturing Co.

294 Turk St., San Francisco

Art Reeves' New Address:

ART REEVES MOTION PICTURE EQUIPMENT
AND CAMERA SUPPLY COMPANY

7512 Santa Monica Blvd., Hollywood 46, Calif.

Only Art Reeves Can Sell The New Model

SENSITESTER

Will Handle Modern Fine Grain Film

Current Assignments of A.S.C. Members



Major film productions on which members of the American Society of Cinematographers were engaged as directors of photography during the past month

Allied Artists

• **HARRY C. NEWMARK**, "I Was An American Spy," with Ann Dvorak, Gene Evans, Douglas Kennedy, Lester Klinefelter, director

Columbia

• **HENRY FORD**, "Crysin' Feet," with Charles Starrett, Smiley Burnton, Ray Nazario, director

• **ELIA CARTER**, "Sunny Side of The Street," with Frankie Laine, Billy Daniels, Tom Auden and The Rhythmatixes, Richard Quene, director

• **JOHN WALKER**, "Remember That Face," with Brendek Craven, Betty Roberts, Otto Huelin and Ernest Borgnine, Robert Patrick, director

• **ROBERT GUTTER**, "The Secret," with John Dink, Lee J. Cobb, Judy Lawrence, and Henry O'Neill, Henry Levin, director

Independent

• **GEORGE E. DURENT**, "Storm Over Tibet," (Summa Productions) with Diana Douglas, Rex Kowes, Myrna Healy, Bob Kerns, William Schaffert, Harold Page, Andrew Macdon, director

Lippert

• **JACK GREENGLASS**, "Man For Hire," with Hugh Beaumont, Richard Travis, Ann Savage, William Bette, director

• **JACK GREENGLASS**, "Raining City," with Richard Travis, Hugh Beaumont, and Virginia Dale, William Bette, director

M-G-M

• **ROBERT FLAHC**, "Rich, Young and Pretty" (Technicolor), with Jane Powell, Vic Darnice, Wendell Corey, Duane Davis and Tom Melick, Norman Taurog, director

• **CHARLES BRUSH**, "Showboat" (Technicolor), with Kathryn Grayson, Ava Gardner, Howard Keel, Joe E. Brown, Agnes Moorhead, George Sidney, director

• **JOHN ALTON**, "Red Lady," with Bobette Bennett, Maureen Evans, Angela Lansbury, Kenneth Wayne, David Lloyd and Betty Blair, John Alton, director

• **BARBARA ROSS**, "Love Is Better Than Ever," with Elizabeth Taylor, Larry Parks, Josephine Hutchinson and Tom Tully, Stanley Donen, director

• **CHARLES LUTWIG**, "No Questions Asked," with Barry Sullivan, Adrienne Dahi, George Murphy, Jean Hagen, Richard Anderson and Emil Meyer, R. F. Kline, director

• **PAUL C. VOGEL**, "Man On The Train," with Dick Powell, Paula Raymond, Marshall Thompson, Adolphe Menjou, Ruby Dee, Florence Bates and Richard Rogers, Anthony Mann, director

• **ROBERT ROSS**, "The Soap," with Shirley Ross, Sally Forrest, James Cagney, William Demarest, Kay Brown, Myrna Dell, Vic Damone, Mervyn Lewis, Lester Karmel, director

• **WILLIAM MELROD**, "The Bowdoin House Story," with Walter Pidgeon, Ann Harding,

Lloyd Battysmore, Keefe Bransell, Philip Ober and Edward Franz, Richard Thorpe, director

• **RAY JUNE**, "Rondy Dolefulsome," with Eric Pinner, Janet Leigh, Mollard Mitchell, Gale Robbins, Norman Parsons and Melvyn Frank, directors

• **CHUCKER PRATT**, "The Law And Lady Laidley," with Greer Garson, Michael Wildgen, Micheline Morgan, Fernando Lamas, Phyllis Stanley and Ralph Dunlop, Edwin Knopf, director

Monogram

• **MARCEL LEPONCE**, "Ocean Chasers," with Leo Gorcey, Stuart Hall, Jan Kayne, and Lloyd Corrigan, William Besuden, director

Paramount

• **GEORGE BARNES**, "Here Comes The Groom," with Bette Davis, Jane Wyman, Franklyn Tame, Robert Keefe and Jack Oswald, Frank Capra, producer-director

• **LEE GARMAN**, "That's My Boy," (Hal Wallis Prod.) with Dean Jagger, Jerry Lewis, Ruth Hussey, Eddie Mayhew and Polly Bergen, Hal Walker, director

• **JOHN ALTON**, "Where Worlds Collide," (Technicolor), with Richard Dix, Faye Harrison and Larry Keating, Rodolph Mat, director

• **LEONID LINDEN**, "Salvatore Comandante," with William Holden, William Bendin, Nancy Olson, John Patton, director

• **LEONID LINDEN**, "Crosswinds" (Pine-Thomas Prod.) (Technicolor), with John Payne, Rhonda Fleming, Francis Taylor, John Abbott and Alan Mowbray, Lewis E. Foster, director

R.K.O.

• **RONALD BARLAN**, "The Thing" (Wichitown Pictures), with Kenneth Tobey, Margaret Sheridan, James Young, Christina Nyby, director

• **EDWARD CRONJAGER**, "Two Tickets To Broadway" (Technicolor), with Janet Leigh, Tony Martin, and Sarah & Dale, James V. Kline, director

• **WILLIAM WINTER**, "Flying Leatherstocking" (Technicolor), with John Wayne, Robert Ryan, Dan Taylor, Jay C. Flippen, Nicholas Ray, director

• **ANDREW STOUT**, "On The Loose" (Pilmakers), with John Saxon, Leta Stetter, Robert Arthur, Charles Lederer, director

• **NICK MICHIGANO**, "Roadster Range," with Tim Holt, Richard Martin, Joan Dixon, John Dehner, Stuart Olsen, director

20th Century Fox

• **CHARLES G. CLARKE**, "Kargill" (Technicolor) (Shooting In America), with Maureen O'Hara, Peter Lawford, Finlay Currie and Richard Boone, Lewis Milestone, director

• **LEON BRAMONT**, "David And Bathsheba" (Technicolor), with Gregory Peck and Susan Hayward, Henry King, director

• **JOSEPH LAURELL**, "The Guy Who Rook

The Navy," with Paul Douglas, Joan Benoit, Linda Darnell, Don DeFore and Sore Mamel, Joseph Newman, director

• **JOE MACDONALD**, "Will You Love Me In December," with Mervyn Wain, Joan Peters, Constantine Brown, Marilyn Monroe and David Wayne, Herman James, director

• **ROBERT ROSS**, "The Frog Man," with Richard Widmark, Dana Andrews, Gary Merrill, Jeffrey Hunter, Robert Wagner and Warren Stevens, Lloyd Bacon, director

• **ARTHUR ARNOLD**, "Meet Me After The Show," with Betty Grable, Maudie Granger, Ray Collins and Eddie Albert, Richard Sale, director

• **HARRY STRALING**, "Golden Gate," (Thor Productions) with Fred MacMurray, Eleanor Parker, Richard Carlson, Ray Buckley, Les Merkle, Douglas Dumbrille and Nestor Paiva, George Menefee, director

Universal-International

• **BENJO GRAMMER**, "Friends Gave To The Boys," with Donald O'Connor, Piper Laurie, Civil Keating, Jesse White, Vaughn Taylor, Barry Kelly, Haydee Kater, Arthur Lubin, director

• **MARSHY GRANTMAN**, "Me and Pa Kerle At The Crazy Fair," with Marjorie Main, Peggy Kilmer, Len Nelson, James Best, Charles Barton, director

• **RONALD MITCHELL**, "The Golden Horde," (Technicolor) with David Farrar, Ann Byrne, Fugate Castle, Richard Egan, Freddie Raskall, Howard Froese, and Henry Brandon, George Sherman, director

• **CHARLTON HUSTON**, "The Iron Mask," with Stephen McNally, Jeff Chandler, Evelyn Keyes, Joyce Holden, Kirk Douglas and Jim Backus, Joseph Pevney, director

• **GEORGE ROSSMAN**, "The Real McCoy," with Red Abbott, Lou Camilla, Dorothy Shay, Kirby Grant, Sam Coggins, and Ida Moore, Charles Lamont, director

Warner Brothers

• **ED HERICK**, "Fast Work," with Randolph Scott, David Brian, Phyllis Thurnau, Helma Covert and Henry Hall, Edwin L. Merna, director

• **ROBERT STONE**, "Thunder in Aachen Bay," with Ruth Roman, Steve Cochran, Lillian Tash and Wilford Brinley, Fela Felt, director

• **EDMUND HALLER**, "Moonlight Bay," (Technicolor) with Deane Jay, Gordon MacKay, Jack Smith, Mary Wickes, Rosemary de Camp, Leon Ames

• **ED DOWD**, "It Was A Wonderful Life For F.B.I.," with Frank Lovejoy, Dorothy Hart, James Millican and Constance Mayne, Gordon Douglas, director

Leo Moez, scientist, writer and lecturer in the field of motion pictures, passed away in Hollywood last month, following a brief illness. At the time, he was associated with Karl Freund's Photo Research Corp., as technical writer. At one time Moez was head of Paramount Studios' experimental optical laboratory. He was the author of several technical books dealing with photography, and at one time was associated with Gevaert in Europe, aiding that company in the development of its color film processes.

SOUND ON QUARTER-INCH TAPE

(Continued from Page 22)

would introduce an objectionable hum into the sound recording if it were recorded directly on the tape. A longitudinal track can be used for the control signal and a transverse track for the signal, but this would necessitate great complication. It would require an additional record head and amplifier at the recorder, and an additional playback head and preamplifier at the playback machine. With the Pic-Sync system, however, no mechanical modifications need be made and no heads added to the recorder.

The simplified circuit of the Control Track Generator is shown in Fig. 1. The audio signal, entering at the input terminals, passes through the filter which eliminates sound track frequencies above 12,000 cycles so as to prevent inter-modulation between the audio signal and the control signal. The local oscillator, modulated by the line frequency, is fed at a controllable level to the input of the amplifier, being mixed with the audio signal at that point. A built-in VU meter permits the adjustment of the level of the oscillator signal to the desired amount, and another adjustment permits setting the over-all output to the same value as the input signal. The generator uses only two dual triodes—one serving as a two-stage feedback amplifier, while the other serves as the oscillator and a cathode follower which couples to the VU a voltage regulator complete the tube line-up. The output of the Control Track Generator feeds the tape recorder at the same level as it is normally fed from the mixer. Fig. 2 shows the external appearance of unit.

Since the Pic-Sync system operates on the difference in phase between the recorded magnetic sprocket holes and the projector supply voltage, it is seen that the control accuracy is within one-half cycle of the control voltage, or $1/330$ of a second for a 60-cps line. This corresponds to one-fifth of a frame, which is the accuracy with which the system maintains synchronism. However, the range of control is such that the professional tape machine on which the original tape was recorded must be held within the manufacturer's specifications for deviation from synchronous capstan speed. The maximum range of control available during playback is 2% from the synchronized recording reference. This includes the factors of tape slippage, capstan deviation and geometric distortion of the tape.

Once the tape speed of the recorder is adjusted to the required accuracy, the Control Track Generator will furnish the magnetic sprocket holes which synchronize the tape during playback. Most picture and TV installations are already equipped with magnetic tape recorders of the conventional type, and the addition of the Pic-Sync system reduces operating overhead because the saving in track costs will continue as long as the equipment is used.

Even the small producer of motion pictures—either 16mm or 35mm—can begin to take advantage of the lower operating costs made possible by the Fairchild Control Track Generator—and without obsolescing his present tape recorder. END

Expansion Program For Kinevox

OUTGROWING present facilities at 4000 Riverside Dr., Burbank, Calif., Kinevox, Inc., makers of magnetic film recorders and allied equipment, will break ground this month for its new building to be

located on Hollywood Way, opposite Warner Brothers' studio in Burbank.

One story structure will provide over 3,000 square feet of floor space, which will be devoted to offices, equipment assembly, demonstration room and a research and experimental laboratory.

Company, established only eighteen months ago, has enjoyed unprecedented growth and is currently busiest producer of magnetic recording equipment on west coast.

Company, which is headed by Len H. Ross, A.S.C., and Wm. T. Crespinel, A.S.C., reports greatly increased export business, with its equipment now in use in the production of motion picture film in more than twelve foreign countries. Kinevox, Inc., has representatives in N. Y. C., Mexico City, Rome and Bombay.



CAMART

OPTICAL FX UNIT

Will reproduce from 2 to 24 images on film or TV from a single object and rotate them at any speed, for 16 and 35mm cameras. Compatible with four surface prism and housing, base assembly, mirror type unit.

\$99.99 plus express fee

Camera unit—separation effects, prints. Adapters for use with Marshall film camera.

THE CAMERA • MART INC.

79 West 45th St., New York 36, N. Y.

RUBY CAMERA EXCHANGE

Rents . . . Sells . . . Exchanges

Everything You Need for the

PRODUCTION & PROJECTION

of Motion Pictures Provided
by a Veteran Organization
of Specialists

35 mm. . . . 16 mm.

Television

IN BUSINESS SINCE 1910

725 Seventh Ave., New York 19, N.Y.

Tel. Circle 5-5640

Cable Address: RUBYCAM

THEATER QUALITY 16mm SOUND

The finest equipment plus top technical skill gives you the brilliant, true-to-life track that will result in wider distribution and more bookings for your picture. Let us prove Telefilm recording can benefit you.

Write for Information

Dept. A-11

TELEFILM, INC.

6839 Hollywood Blvd.

Hollywood 28, Calif.

Scheide FILTERS

to World-Wide Use

Produce marvellous and right effects in daytime-day scenes—difficult tone and many other effects.

Advantages include no impact.

DOMESTIC FILTER COMPANY
INCORPORATED (A BUSH FILMS
UNIT) New Haven 20, Conn. • Hollywood 44, Calif.



ARCHITECT'S drawing showing view of new building soon to be erected in Burbank by Kinevox, Incorporated

MOVIOLA

FILM EDITING EQUIPMENT
16MM - 35MM

- PICTURE
- SOUND — Photo and Magnetic
- SYNCHRONIZERS
- SEWINGERS

Model LP
for
16mm.
Picture

Write for
Catalogue

MOVIOLA MANUFACTURING CO
1451 Gordon St. • Hollywood 32, Calif

EYEMO

SINGLE-LENS CAMERAS

With 2" B&L Lens and Case;
late style governor. Guaranteed.

\$250.00

CAMERA EQUIPMENT CO.
1836 Broadway New York 15, N.Y.

AUTOMATIC DAYLIGHT DEVELOPING TANK



- Processes up to 200 ft.
- 16mm, 10mm, 8mm
- Movable Rack-Strips
- Motor Drive — Positive
- Undruggable Parts
- Uniform Quality Assured
- Some tanks also use 35mm

Write for full literature. Dept. A
MICKS RECORD CORP.
20 East 19th Street
New York 32, N.Y.

RUBY EDITORIAL SERVICE, INC.

Complete Film Editorial Facilities for
Motion Pictures & Television
Production

SOUNDPROOF AIR-CONDITIONED
PRIVATE EDITING ROOMS
Modern Equipment for

EVERY TECHNICAL REQUIREMENT
35 & 16mm.

RENTALS BY DAY, WEEK
OR MONTH

ALL NEW MOVIOLA EQUIPMENT

Equipment Available for
Off-the-Premise Rentals.

729 - 7th Ave., New York 35, N.Y.
Tel. Circle 5-3640

12 ISSUES — 1 Year — of American
Cinematographer, \$3.00. Subscribe today
—one form enclosed with this issue

WHAT'S NEW

in equipment, accessories, service



TV Camera Car

A new lightweight and extremely mobile camera car for television cameras is announced by The Camera Mart, Inc., New York City. Weighing less than 200 lbs., it can be lifted by two men. Width is 27"—sufficiently narrow to go through a standard doorway. Boom arm will support a 150 lb. camera, affords an elevation angle of 90° permitting camera to be used at heights ranging from 26 inches to seven feet. Car may be disassembled into three sections in less than two minutes and made ready for transportation in automobile or truck. Price of this new accessory, trademarked the Camart TV Camera Car, is approximately \$1,500.00 FOB New York.

New Cine Camera Lenses

Bausch & Lomb Optical Co., 635 St. Paul St., Rochester 2, N.Y., announces three new lenses for 8mm and 16mm cine cameras, which round out the company's impressive series of lenses for these cameras.

Comparable in operation to the Bausch & Lomb 35mm. Bausch lenses which are used extensively by major Hollywood studios, two of the lenses are for 8mm. cameras. One is a 7.5mm, 1/1.5 wide angle; the other a 15mm, 1/1.5 high-speed model. The third of the series is a 25mm, 1/1.5 high-speed lens for 16mm. cameras.

As with other B&L lenses in the Anamart series, the three new models are coated to improve image quality and have click and speed displacement stops.

Booklet Deals With Stains

"Stains On Negatives And Prints" is title of latest technical booklet issued by Eastman Kodak Company, said to be of

interest to workers who encounter stains and who want to know how to identify them, prevent them, and whenever possible, how to remove them. Book is well illustrated with a number of photographs showing different types of stains and also contains a number of charts which summarize information on various types of stains.

Punched for insertion in the Kodak Photographic Notebook, booklet is available through all Kodak dealers at 25 cents per copy.

400-Ft. Magazine for "Special"

A 400-foot film magazine is now addition to line of Cine-Special camera accessories offered by Par Products Corp., 926 N. Citrus Ave., Hollywood.

Magazine features light trap which opens automatically when camera door is closed, reverses for backwinding, and includes a footage counter. Installation of magazine does not prevent normal use of camera's regular 100-ft. film chamber. Also available is synchronous motor drive for the "Special" that operates camera at 24 f.p.s. Further data and prices available from the manufacturer.



Hydra Pan Head

Employing a unique hydraulic principle of panning movement for cameras is the recently announced Hydra Pan pan head for cine cameras. In use, pan head is cocked then released by trigger, setting camera in a smooth panning motion without other attention by camera operator.

Manufactured by Hydra Pan Head Co., 800 Clearwater St., Los Angeles 37, it is particularly adaptable to use with cine cameras where panning action must be precise.

Classified Ads

(Continued from Page 42)

CAMERA & SOUND MEN

AVAILABLE for assignments in Hawaii. Proficiently equipped with 15mm and 16mm cameras. TOM MATSUOKA, 140 So. Berwick St., Honolulu, Hawaii.

WANTED

WANTED TO BUY FOR CASH

CAMERAS AND ACCESSORIES
MITCHELL, R. & H. EVANS, DEERIE, ARKLEY
AND LABORATORY AND CUTTING ROOM
EQUIPMENT

CAMERA REPAIRMENT COMPANY
1430 BROADWAY, NEW YORK CITY 19
CABLE: CINCORP

High prices paid for all types of 16-25mm equipment. Especially used cameras, projectors, motion picture magazines. ROBERT G. KARR, 121 7th Ave., New York 19 N.Y.

Wanted: Baby Binos, Mitchell NC Camera. Box 1115, AMERICAN CINEGRAPHIC

LABORATORY & SOUND

RECORDING at a reasonable cost. High Fidelity 16 or 18. Quality guaranteed. Camera service and laboratory services. Color printing and master copying. EPCAR MOTION PICTURE LABORATORY, INC., 1115 Carnegie Avenue, Cleveland 3, Ohio. Phone SP48071 2707-8

SLIDES, PHOTOS & FILMS

NATURAL COLOR SLIDES, Sound, National Parks Cities, Animals, Flowers, etc. Roll of night 2500 Super 8 & 16mm SLIDES. Roll 250, La Palme, California

PATENTS

INVENTORS: The world first that is to have a search of the U.S. Patent conducted, as a guarantee on patentability, without obligation. PATRICK D. BRAVERMAN, Registered Patent Attorney, 6031 Columbia Blvd., Washington 1, D.C.

GORDON SPECIALS!

We are proud to offer, in addition to the items listed below, and in our larger ad on page 63, a complete line of 16mm and 35mm negative and positive stock at a fraction of prevailing market prices.

REELS AND CANS

Reel or can 16mm x 400 ft. used... \$ 50
Reel or can 16mm x 800 ft. used... 1.00
Reel or can 16mm x 1200 ft. used... 1.50
Reel or can 16mm x 1600 ft. used... 2.00

SPOTLIGHTS

OTTO K. OLSEN CIRCUS, 2000 watt Model P. Flood light 15' spotlight, less lens... \$29.50

CAMERA AND ANIMATION MOTORS

HEWLETT 12-VOLT DC variable speed motor... \$29.50

REEL & HEWLETT 12-VOLT DC Extra Motor... \$ 90.00

REEL & HEWLETT 12-VOLT DC Studio Camera Motor... \$295.00

AGNE ANIMATION MOTOR... \$475.00

CAMERA MAGAZINES

REEL & HEWLETT 400, total... \$ 68.00

REEL & HEWLETT 400, comparison... \$ 54.50

REEL & HEWLETT 1000... \$115.00

MOVIES

HEWLETT, 35MM, MODEL B, New... \$125.00

HEWLETT, 35MM, MODEL B, Reel... 285.00

See Our BIG AD on Page 63

GORDON ENTERPRISES

1312 N. Chicago St. • No. Hollywood, Calif.

BULLETIN BOARD

(Continued from Page 41)

"The Steel Helmet," low-budget independent film production, which is currently receiving more than passing notice by critics and moviegoers, was photographed by Ernest Miller, A.S.C., in twelve days. Picture will be screened for members of the American Society of Cinematographers at their next meeting, February 12.

Motion Picture Research Council in Hollywood, last month, announced a new theory for a new background screen said to give 5 to 10 times more light to the camera than old type screens. A sample of the new screen is now being made up by the Council for further research and experiment.

Vitascope, new film production device developed by A. P. Dulour, in France and recently acquired for use and distribution in United States by Sol Lesser, was given its first press preview in Hollywood January 25, at the KTVU projection room. Following screening of films made with assistance of the Vitascope, a demonstration of the device was given, followed by a question and answer

period during which all phases of operation of the device was explained.

Vitascope utilizes photographs of actual scenes or settings, regardless of size to provide "sets" against which action of players is staged. Lesser claims that simulation of such massive structures as Notre Dame Cathedral or the Taj Mahal may be achieved in a small studio, either for television programs or for films for TV.

Frank Samuels and Richard Moore, American Broadcasting Company vice-presidents, will address members of American Society of Cinematographers at their February 12 meeting in Hollywood.

Freddie Young, President of British Society of Cinematographers, in Hollywood recently scouting new studio equipment, was a guest of the A.S.C. at the Society's January meeting.

Sol Polito, A.S.C., having successfully recovered from a freak automobile accident several months ago, will return to directing photography next month.

MEET THE NEW 70-DL

(Continued from Page 62)

the best, sharp lens which comes in standard equipment with the camera. This is the new, improved one-inch f/1.9 Super Canon 4-element lens, said to be unusually high in definition. Thus, as with all Bell & Howell lenses, has been given the famous Filmedirect treatment.

A range of seven camera speeds—8, 12, 16, 24, 32, 48 and 64 frames per second—affords the cine photographer a command of speeds for three degrees of slow motion movies; for something out panoramic action; for smoothing the effect of filming from moving vehicles; to produce accelerated motion; and for shooting movies at sound speed where sound is to be added later.

The facilities of the rotating turret head, which takes three lenses with standard "C" mounts, provides instant change from one lens to another. And with comparable finder objectives in the viewfinder, use of multiple lenses becomes a pleasure. Lenses are interchangeable, permitting use of fifteen different Bell & Howell and Taylor-Taylor Hobson lenses, as well as any other lenses with standard "C" mounts.

The new 70-DL retains the important

feature found in the original 70-DA—the critical focusing device which affords through-the-lens focusing for pin-sharp pictures. A hand crank permits backwinding film within the camera, for making lap-dissolves and double exposures.

With one winding, the camera will expose 23 feet of film—enough for five average scenes—and the camera mechanism will stop automatically before the deceleration point is reached, insuring that the entire 23 feet of film will be evenly exposed from start to finish.

Externally, the camera looks very much the same as the familiar old model 70-DA. The starting button is in the same position—on top front of camera, and there is the familiar hand strap anchored at the base.

Price of the camera, with the 1-inch lens mentioned above, is about \$130.00. It's an ideal instrument for the movie amateur graduating to more serious motion picture making, and for many professionals—long adherents of the reliable Filmo 16mm camera for work in the travelogue, lecture film and television newscast film fields.



Left, the Eastman 16mm Projector, Model 25, brings 16mm projection to the professional level. Shown here, adapted for arc illumination, permanently installed alongside 35mm equipment.

Below, working parts of the film movement mechanism are in constant view of the operator, readily accessible for threading and cleaning.



The Eastman 16mm Projector, Model 25, adapted for 1,000-watt tungsten light.



The Kodak Projection Ektar Lens, in a choice of four focal lengths, assures superior screen image.



*East Coast Division
342 Madison Avenue
New York 17, N. Y.*

For Professional Quality Sound Projection from 16mm. Film

The Eastman 16mm. Projector, Model 25

This projection instrument—built to a new design concept—eliminates the three major obstacles to theatrical quality 16mm. sound projection . . . excessive wear and high maintenance cost; low signal-to-noise ratio; and excessive flutter.

A major cause of excessive wear and poor quality sound is the constant transfer of shock forces generated in the film pull-down mechanism to other parts of the system. In the Eastman 16mm. Projector, Model 25, the intermittent (film advance mechanism) is completely isolated and independently driven by its own 1440 r.p.m. synchronous motor. Thus, shock forces are sealed off from the rest of the instrument. The sprocket-drive system is driven by its own 1880 r.p.m. synchronous motor. Exact phas-

ing between the two systems is accomplished by specially designed synchromesh gears. In addition, the take-up spindle, rewind spindle, and blower are driven by separate motors.

A highly corrected microscope objective, adjustable for optimum sound quality from any type of 16mm. sound film, permits reproduction of variable area or variable density 16mm. sound tracks at extremely low distortion and a maximum signal-to-noise ratio.

To get the best out of any 16mm. sound film, project it on an Eastman 16mm. Projector, Model 25. For information on installation, availability, and prices, write directly to the Motion Picture Film Department, Eastman Kodak Company, Rochester 4, N. Y., or any branch office.

Motion Picture Film Department, Eastman Kodak Company, Rochester 4, N. Y.



*Midwest Division
137 North Wabash Avenue
Chicago 3, Illinois*

*West Coast Division
6706 Santa Monica Blvd.
Hollywood 28, California*

announcing Bell & Howell

70-DL

*from every
angle—newest
of the finest*

Here is the newest addition to the Bell & Howell "70" series... the world's first line of 16mm cameras!

The 70-DL includes all the basic features that have given "70" cameras top ranking all over the world, plus many important new improvements. First, check the advantages illustrated here. Next, go see it at your Bell & Howell dealer! Then you'll know why it's destined to be the cameraman's center!

7 film speeds... 8, 12, 18 (normal), 24 (sound), 32, 48, and 64 (true slow motion) frames per second.

Critical Focuser permits you to look through the lens for precise visual focus on the subject.

Hand Crank for short double exposures and other track effects and for selected film run.

Powerful Spring Motor winds like a watch with folding, non-rotating key. Operates 22 feet of film on one winding. Speed is accurately maintained throughout run of film.

70-DL 16mm camera complete with 1" f/1.9 lens only **\$369⁹⁵**

Focusing eyepiece... into individual light variations. Makes viewing easy for those wearing glasses. Increases illumination to the eye up to 600%.

Price subject to change without notice.



Rotating Viewfinder Turret mounts 3 positive viewfinder objectives to match lenses on turret.

Turret Hand accommodates three lenses for instantaneous change.

Perforax Adjustment corrects drum infinity down to 3 feet.

Film Plane Mark clearly shows position of film plane within camera for accurate focusing measurement.



Guaranteed for life During life of the product, any defects in workmanship or material will be remedied free (except transportation).

**You buy for life when you buy
Bell & Howell**

Chicago 45